Schlumberger

Company: Occidental Petroleum Inc

Well: Cooley 13-16

Field: Wattenberg

County: Weld Country:

County: Weld
Field: Wattenberg
Location: SWSW Sec 16, T2N, R68W
Well: Cooley 13-16
Company: Occidental Petroleum Inc

Cement Bond Log

Variable Density Log

Gamma Ray - CCL

Location:					
SWSW Sec 16, T2N, R68W SHL: 968' FSL X 1156' FWL			Elev.:	K.B.	4899.00 ft
				G.L.	4885.00 ft
				D.F.	4898.00 ft
Permanent Datum:	Ground Level	Elev.:	4885.00 f		
Log Measured From:	Kelly Bushing	14.00 ft	above Perm.Datum		
Drilling Measured From:	Kelly Bushing				

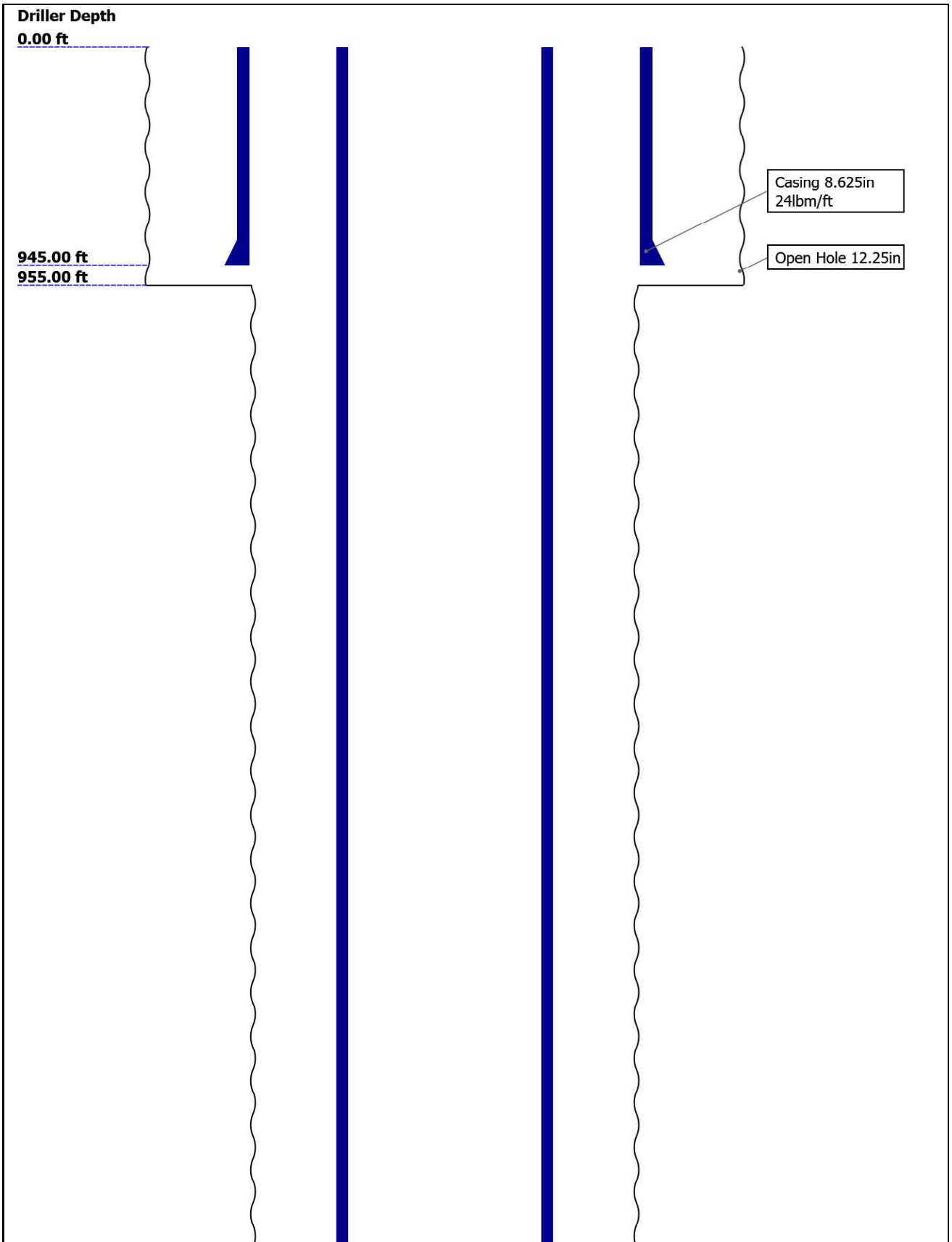
API Serial No.	Max.Hole Deviation	Longitude:	Latitude:
05-123-32278-0000	0 deg	-105.01352 degrees	40.134140 degrees

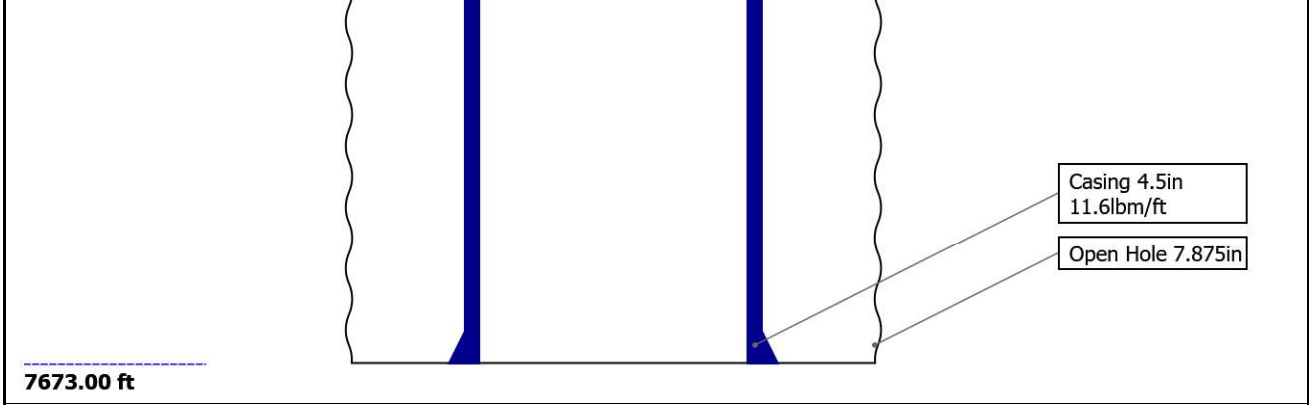
Logging Date		20-Oct-2021			
Run Number		One			
Depth Driller		7673.00 ft			
Schlumberger Depth		7673.00 ft			
Bottom Log Interval		7140.00 ft			
Top Log Interval		50.00 ft			
Casing Fluid Type		Water			
Salinity					
Density		9 lbm/gal			
Fluid Level		8.00 ft			
BIT/CASING/TUBING STRING					
Bit Size		7.88 in			
From		955.00 ft			
To		7673.00 ft			
Casing/Tubing Size		4.5 in			
Weight		11.6 lbm/ft			
Grade		JK70			
From		0.00 ft			
To		7673.00 ft			
Max Recorded Temperatures		200 degF			
Logger on Bottom	Time	20-Oct-2021	08:45:00		
Unit Number	Location:	2801	Ft Morgan		
Recorded By		Avery Becker			
Witnessed By		Kelly Wieser			

Disclaimer

Contents

Well Sketch


Driller Depth
0.00 ft
945.00 ft
955.00 ft
Casing 8.625in
24lbm/ft
Open Hole 12.25in

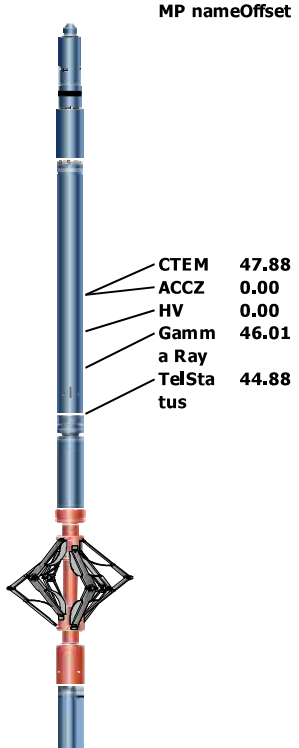


Borehole Size/Casing/Tubing Record

Bit						
Bit Size (in)	12.25	7.875				
Top Driller (ft)	0	955				
Top Logger (ft)	0	955				
Bottom Driller (ft)	955	7673				
Bottom Logger (ft)	955	7673				
Casing						
Size (in)	8.625	4.5				
Weight (lbm/ft)	24	11.6				
Inner Diameter (in)	8.097	4				
Grade	N/A	JK70				
Top Driller (ft)	0	0				
Top Logger (ft)	0	0				
Bottom Driller (ft)	945	7673				
Bottom Logger (ft)	945	7673				

Remarks and Equipment Summary

One: Toolstring



One: Remarks

Tool was run as per tool sketch
All logging intervals as per client request
Log recorded in 10 deg, 6 inch resolustion
No surface induced pressure applied while logging

Lengths are in ft
Maximum Outer Diameter = 3.800 in
Line: Sensor Location, Value: Gating Offset
All measurements are relative to TOOL_ZERO

Depth Summary

	One		
Depth Measuring Device			
Type	IDW-B		
Serial Number	5744		

Calibration Date	22-Sep-2021		
Calibrator Serial Number	57		
Calibration Cable Type	7-46A-XS		
Wheel Correction 1	-9		
Wheel Correction 2	-7		

Tension Device

Type	CMTD-B/A		
Serial Number	5036		
Calibration Date	03-Oct-2021		
Calibrator Serial Number	57		
Number of Calibration Points	10		
Calibration Root Mean Square Error	21		
Calibration Peak Error	37		

Logging Cable

Type	7-46A-XS		
Serial Number	1234		
Length	30000.00 ft		
Conveyance Type	Wireline		
Rig Type			

One:Depth Control Parameters		Depth Control Remarks
Log Sequence	First Log In the Well	Schlumberger depth control procedures followed
Rig Up Length At Surface		IDW used as primary depth control system
Rig Up Length At Bottom		Z-Chart used as secondary depth control system
Rig Up Length Correction		Down log correlated to uplog near 7000 ft
Stretch Correction		
Tool Zero Check At Surface		

One

Main Pass

Software Version

Acquisition System	Version
Maxwell 2021.1	11.1.211946.3100

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[4]:Up	Up	24.56 ft	7146.03 ft	20-Oct-2021 8:48:13 AM	20-Oct-2021 10:45:13 AM	ON	5.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Occidental Petroleum Inc Well:Cooley 13-16

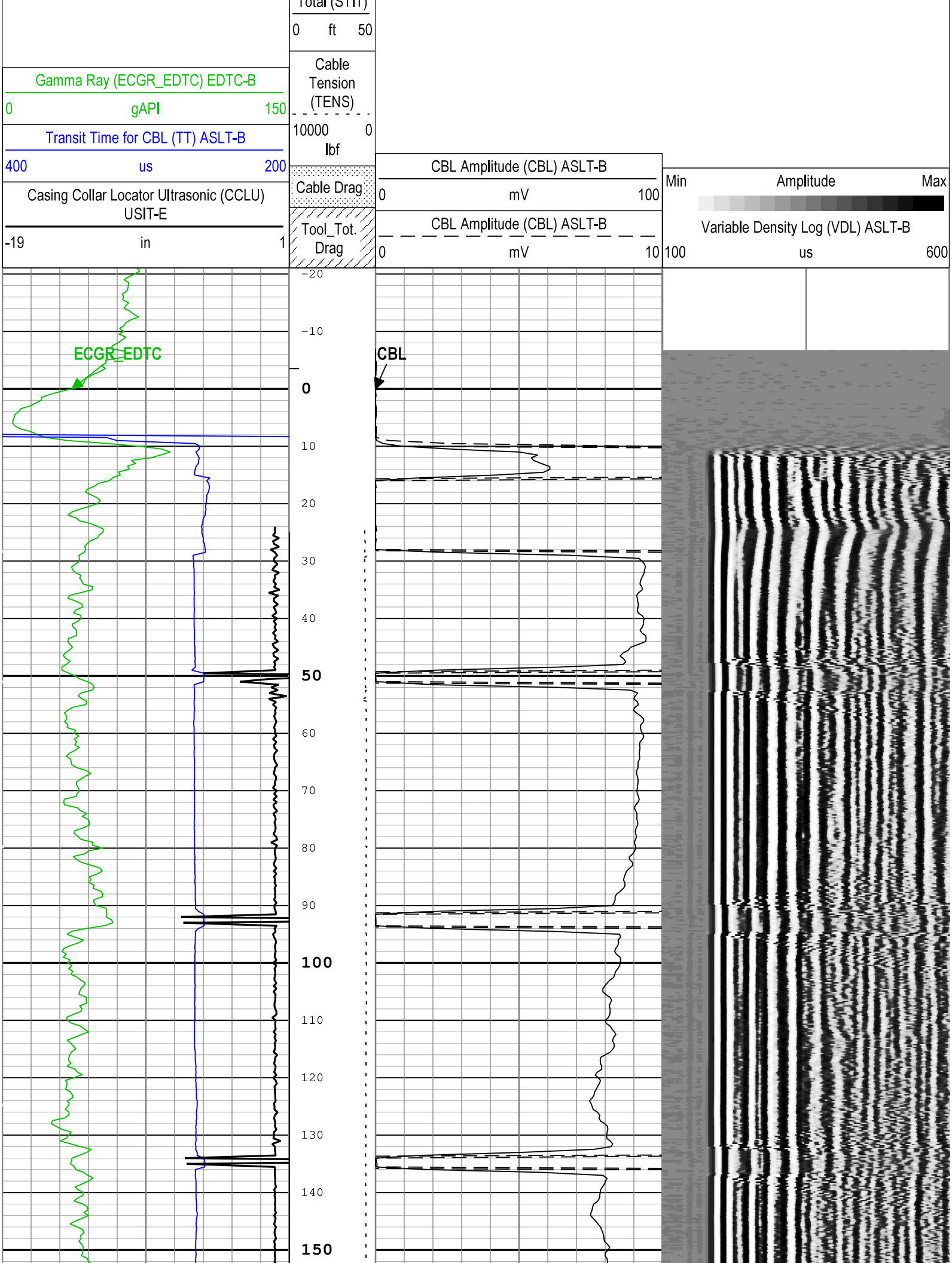
One: Log[4]:Up:S005

Description: CBL_VDL Format: Log (DSLT ASLT_CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Oct-2021 12:01:12

BIEP - Bond Index Event Pips ASLT-B

TIME_1900 - Time Marked every 60.00 (s)

Stuck Tool Indicator, Total (STIT)


Total (STT)
0 ft 50
Gamma Ray (ECGR_EDTC) EDTC-B
0 gAPI 150
Transit Time for CBL (TT) ASLT-B
400 us 200
Casing Collar Locator Ultrasonic (CCLU) USIT-E
-19 in 1
Cable Tension (TENS)
10000 0
lbf
Cable Drag
Tool_Tot. Drag
CBL Amplitude (CBL) ASLT-B
0 mV 100
CBL Amplitude (CBL) ASLT-B
0 mV 10
Min Amplitude Max
Variable Density Log (VDL) ASLT-B
100 us 600
ECGR_EDTC
CBL
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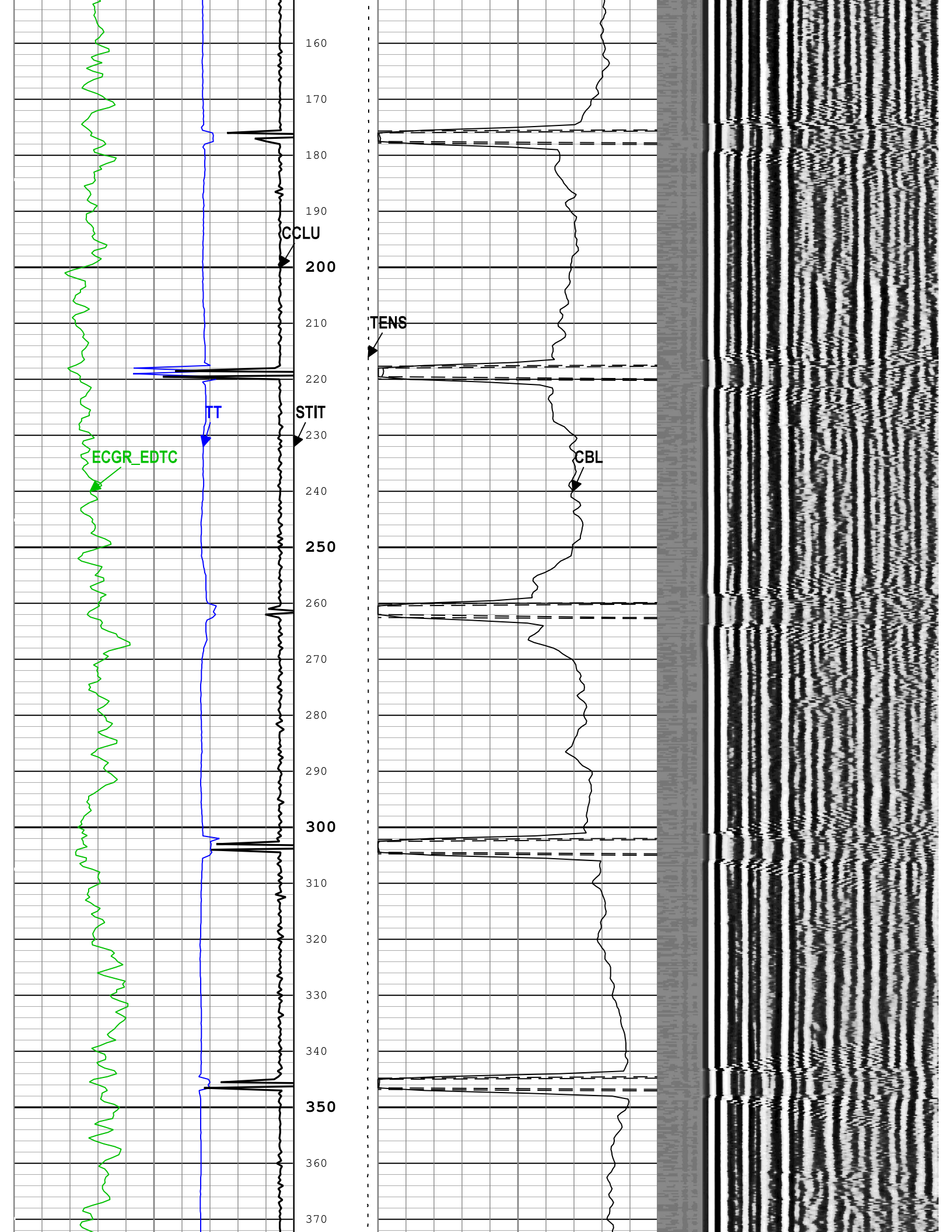
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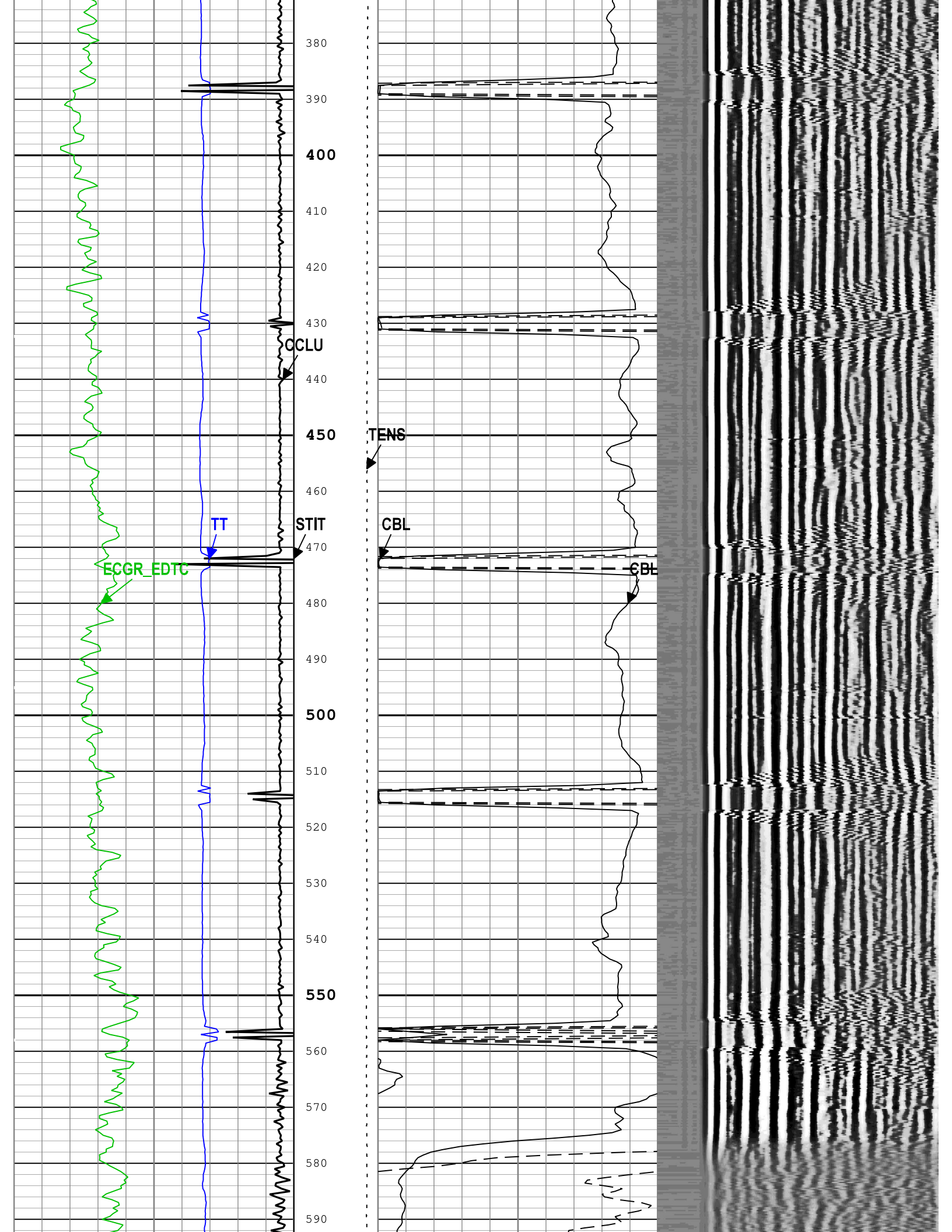
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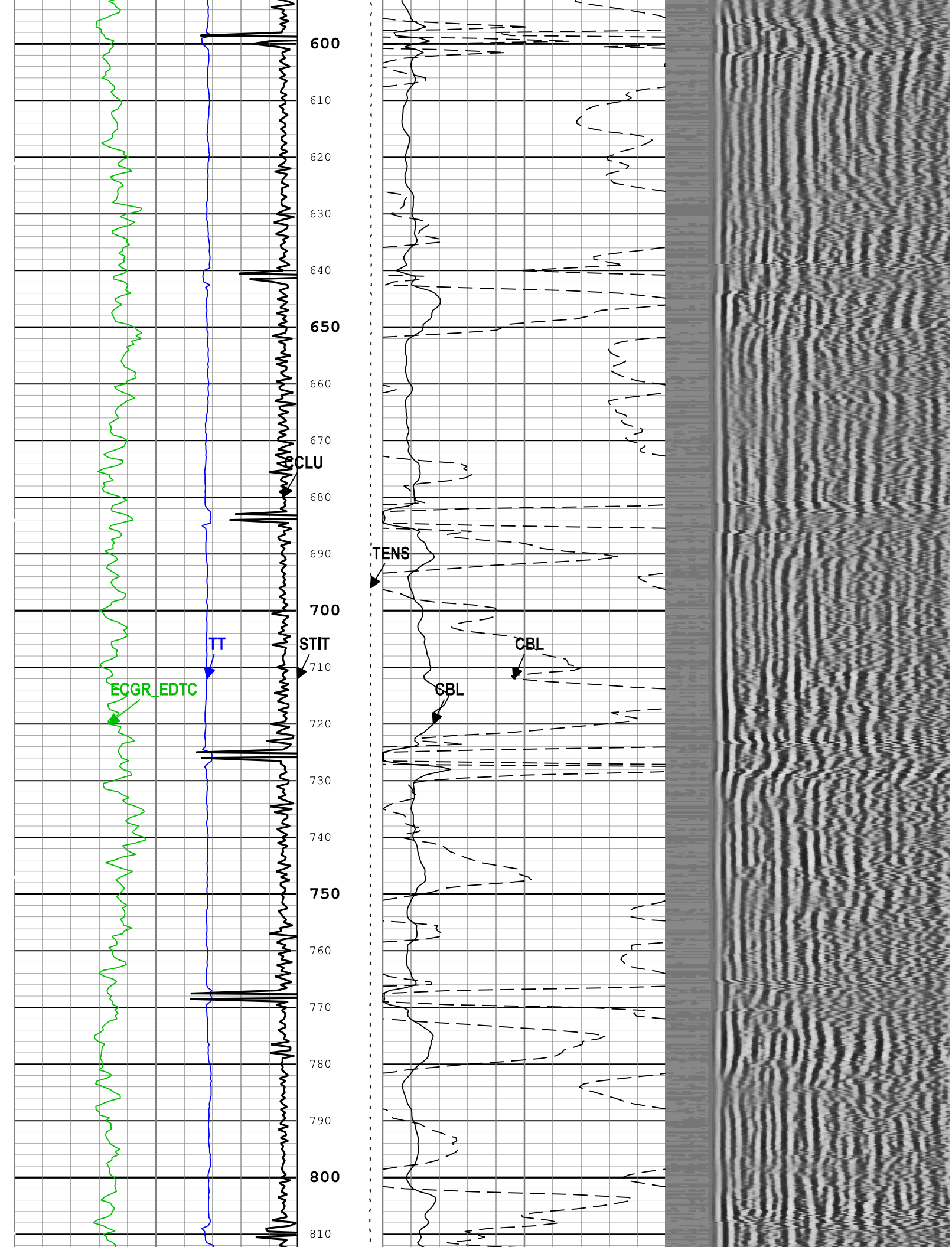
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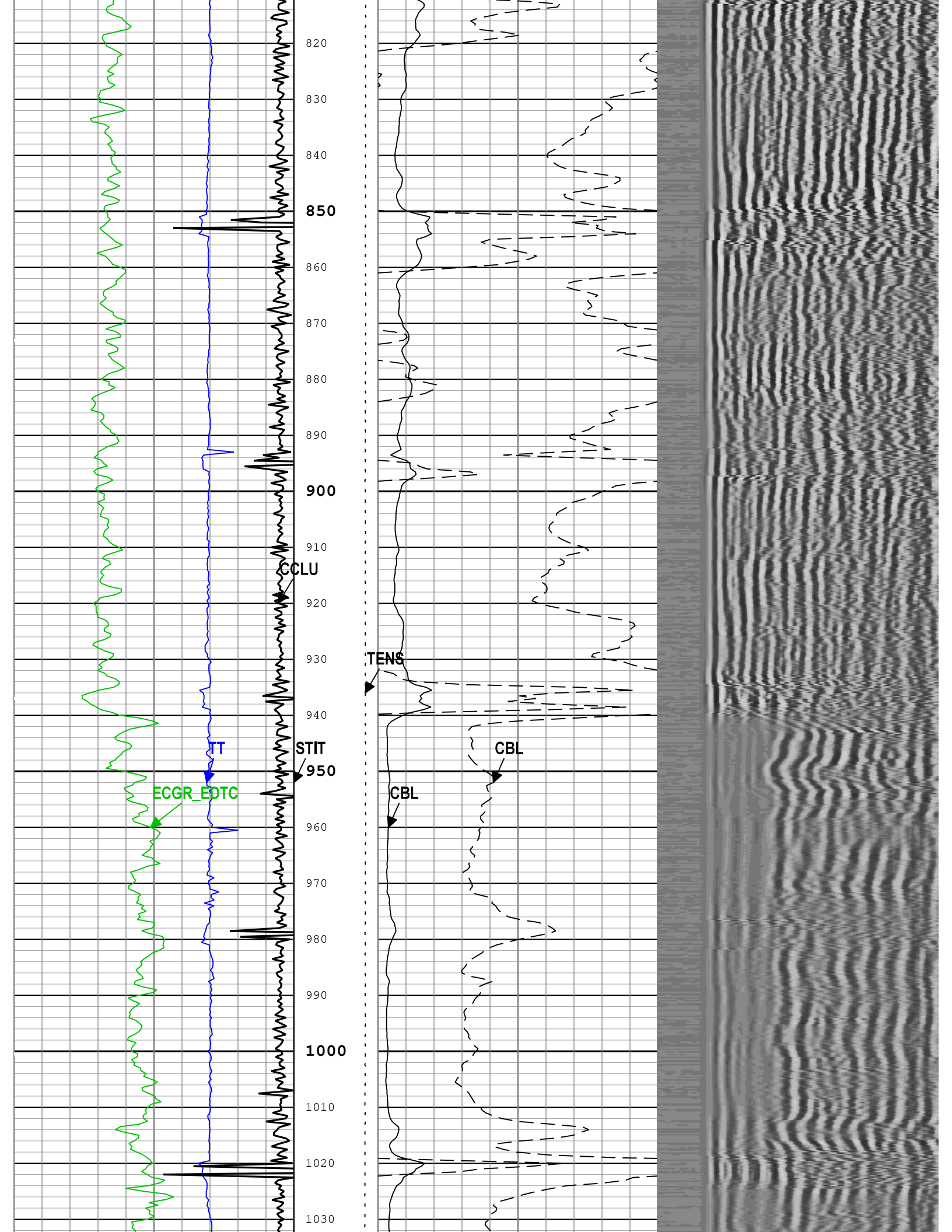
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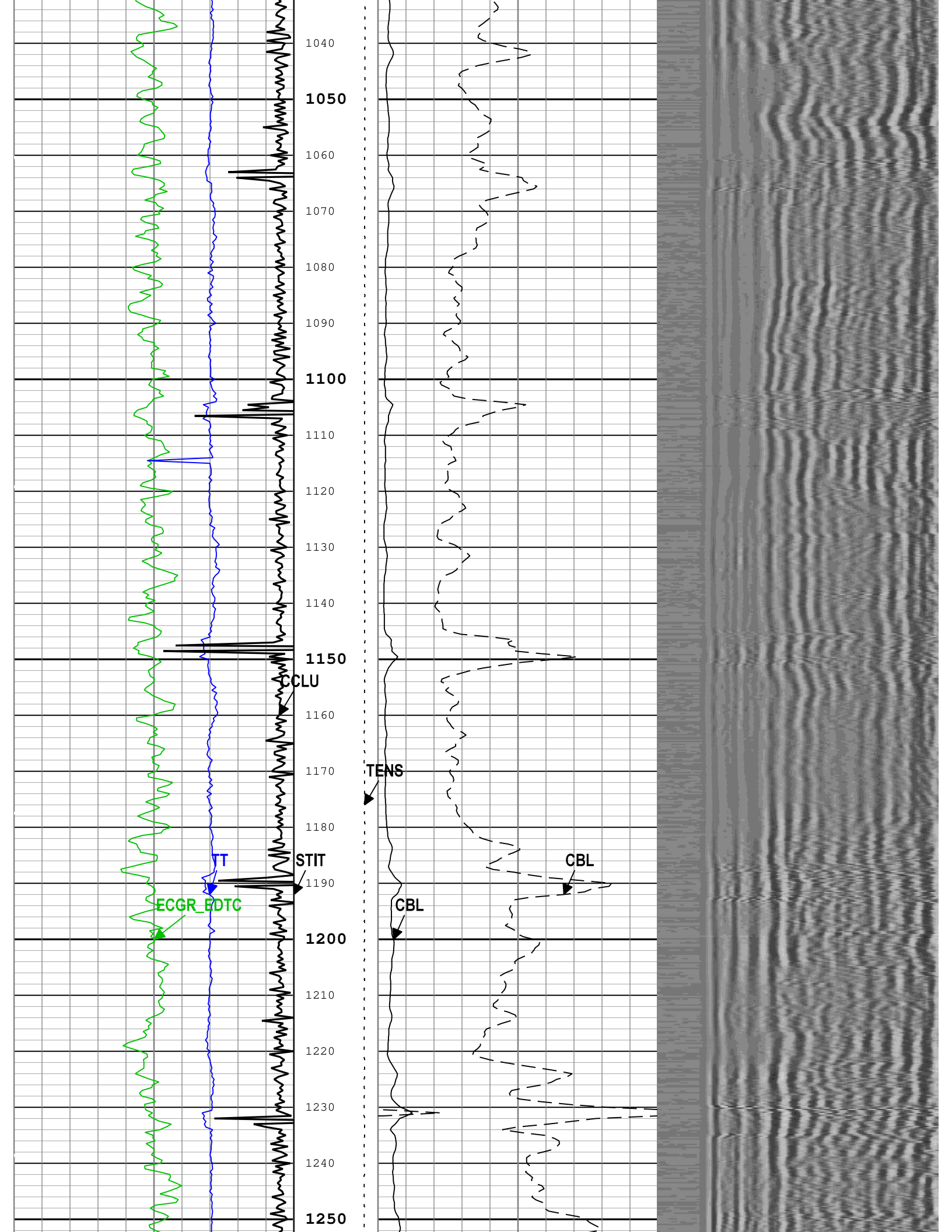
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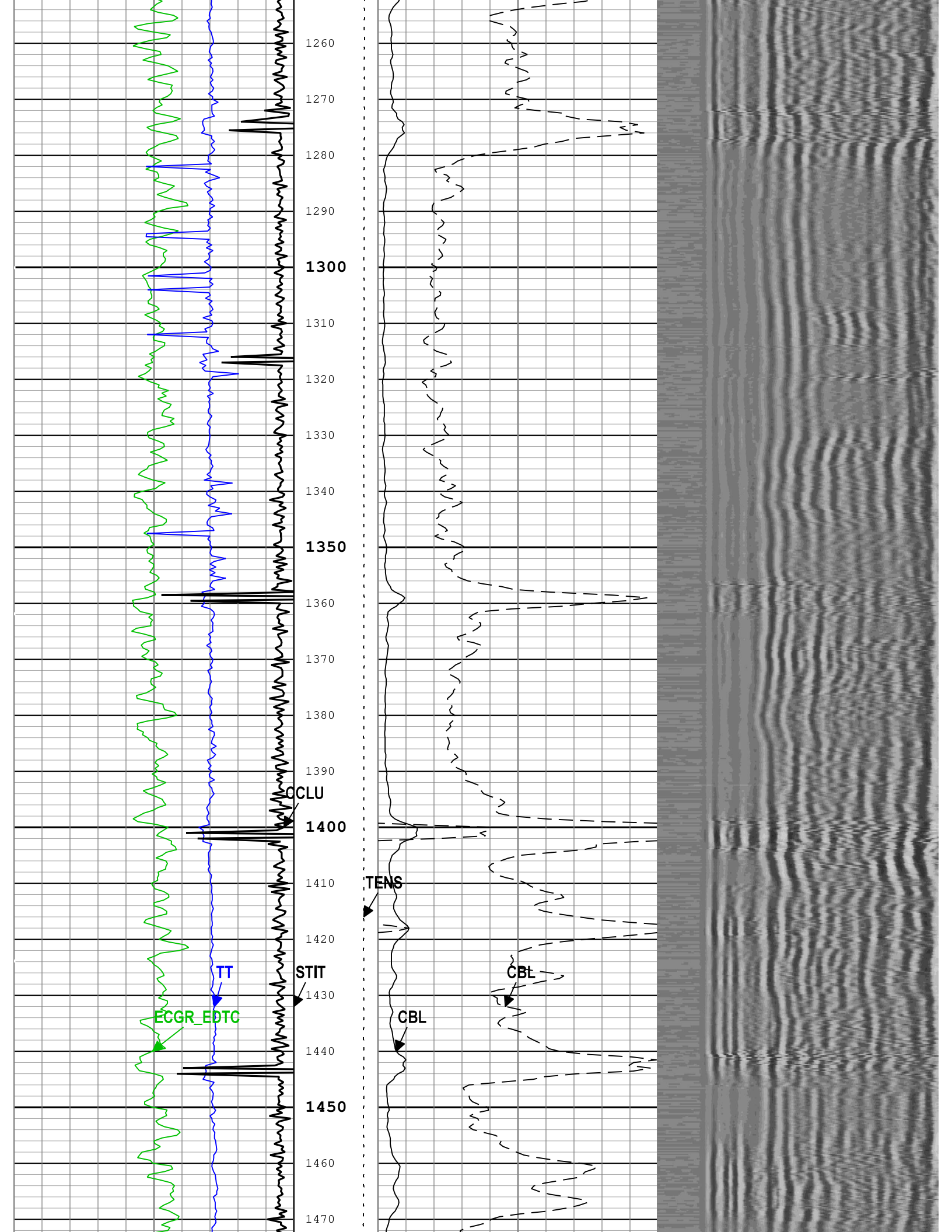
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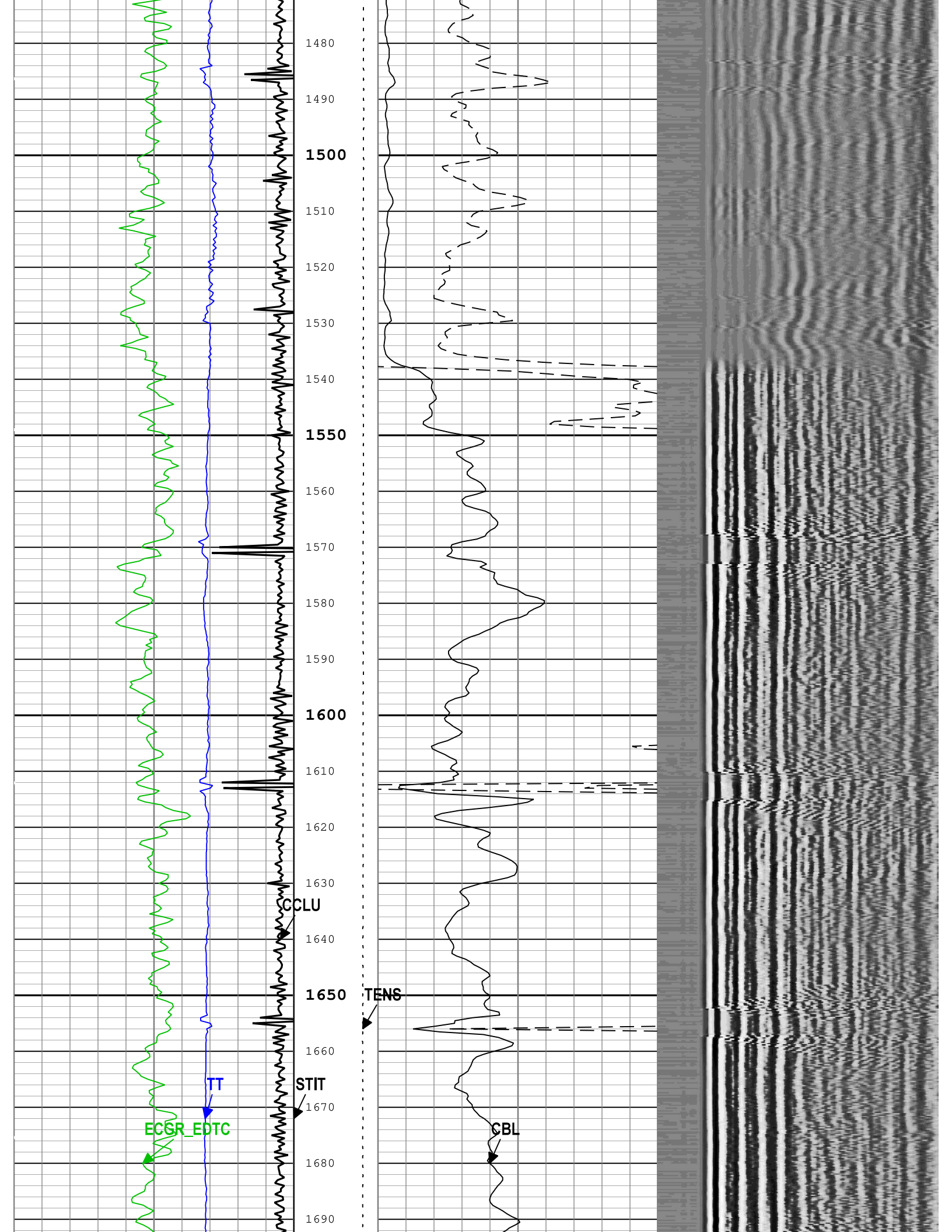
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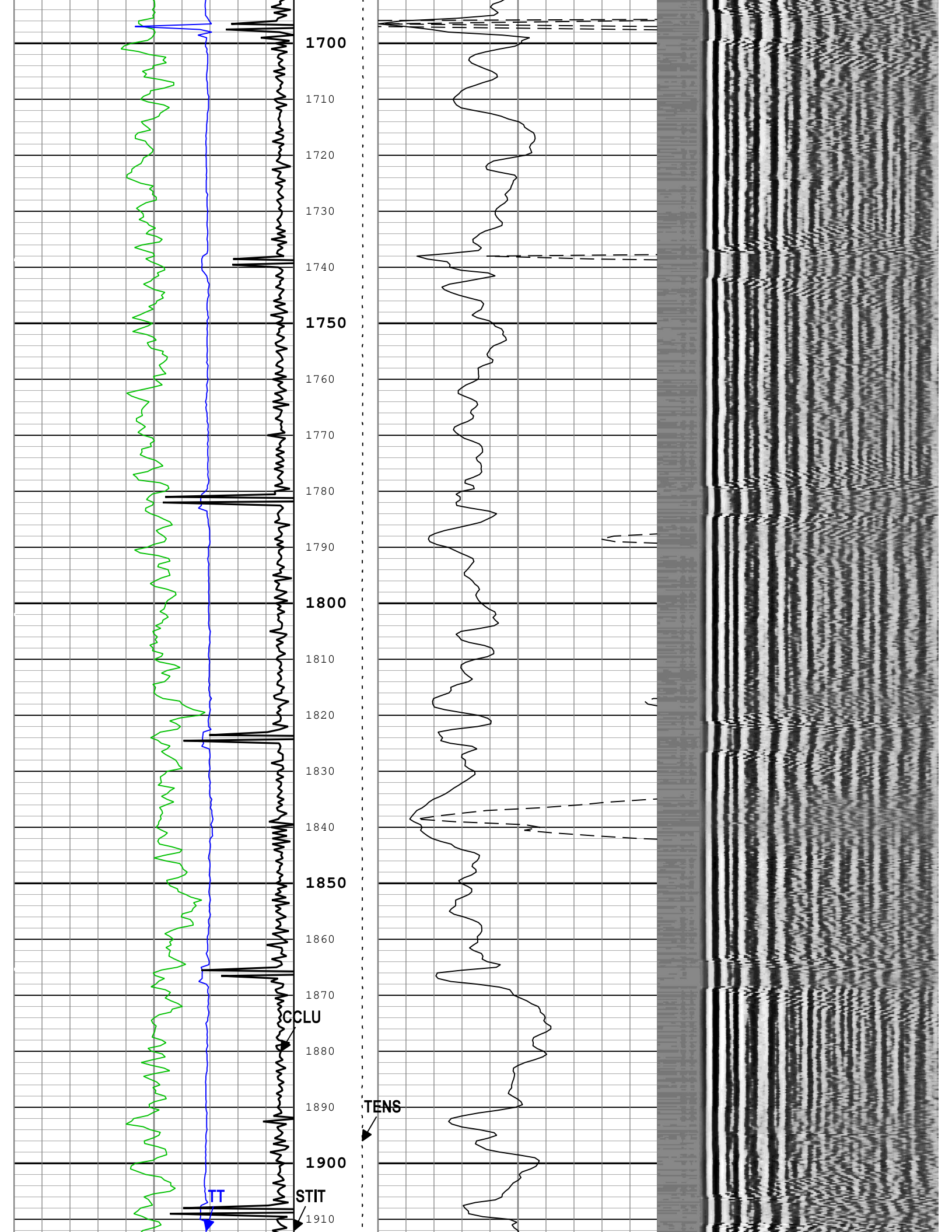
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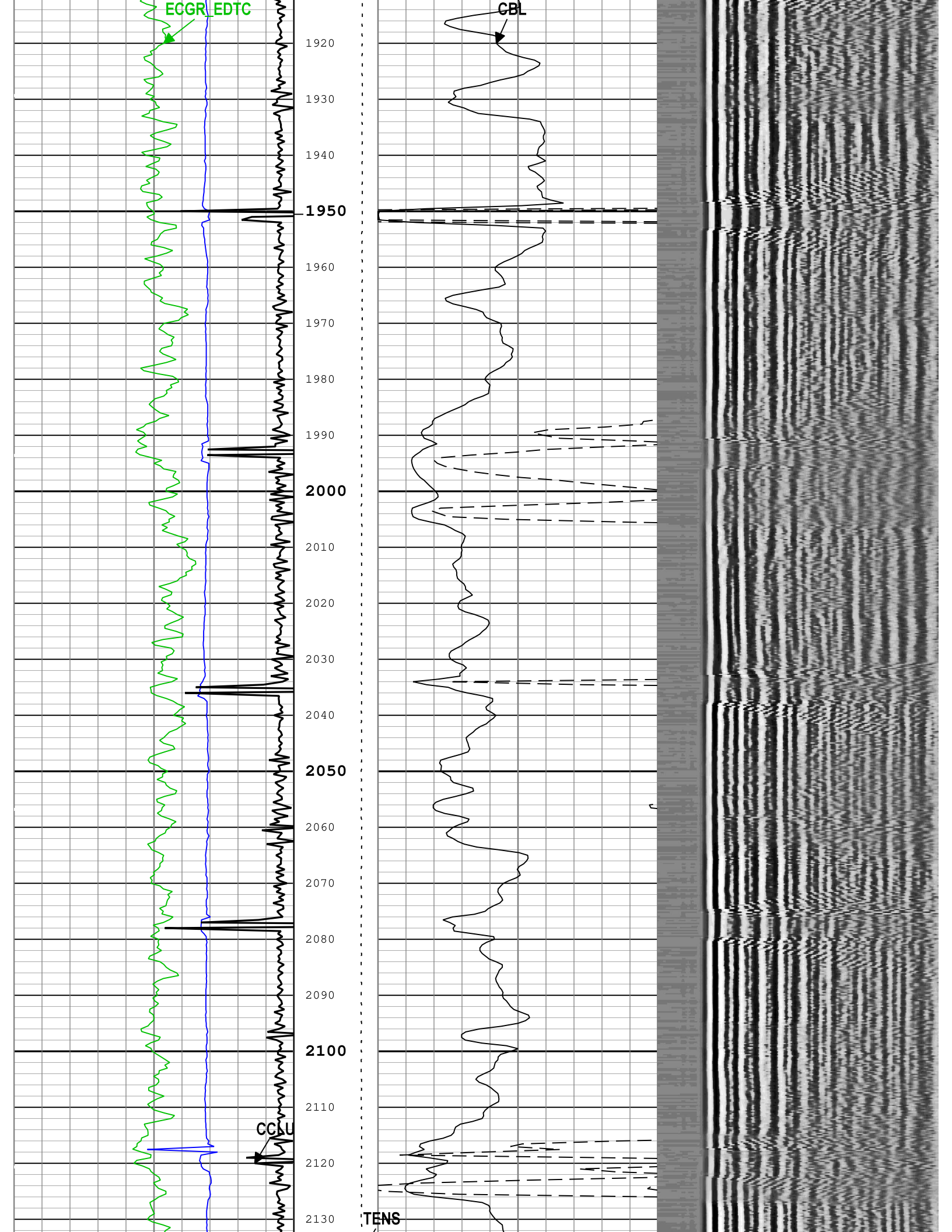
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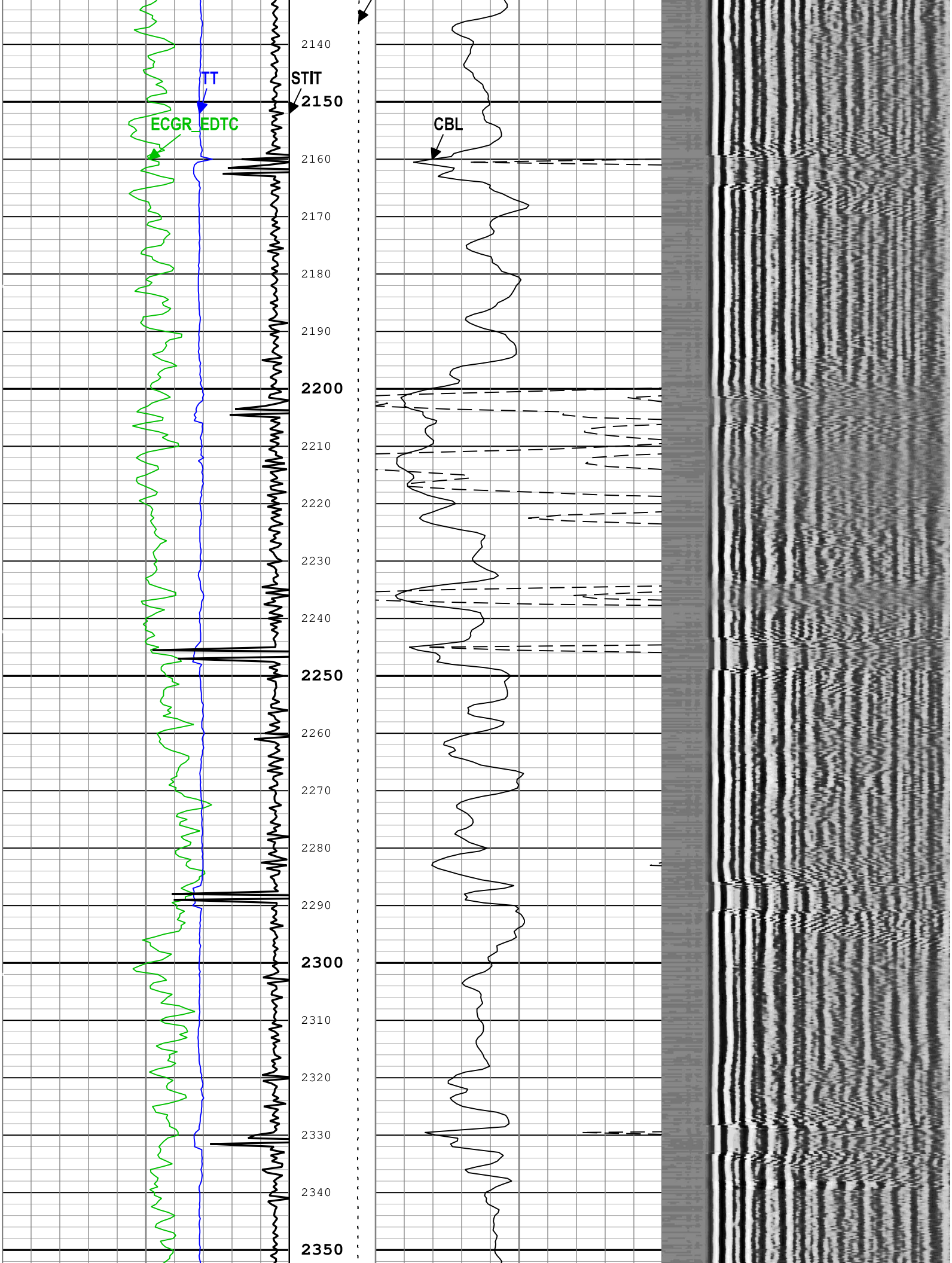
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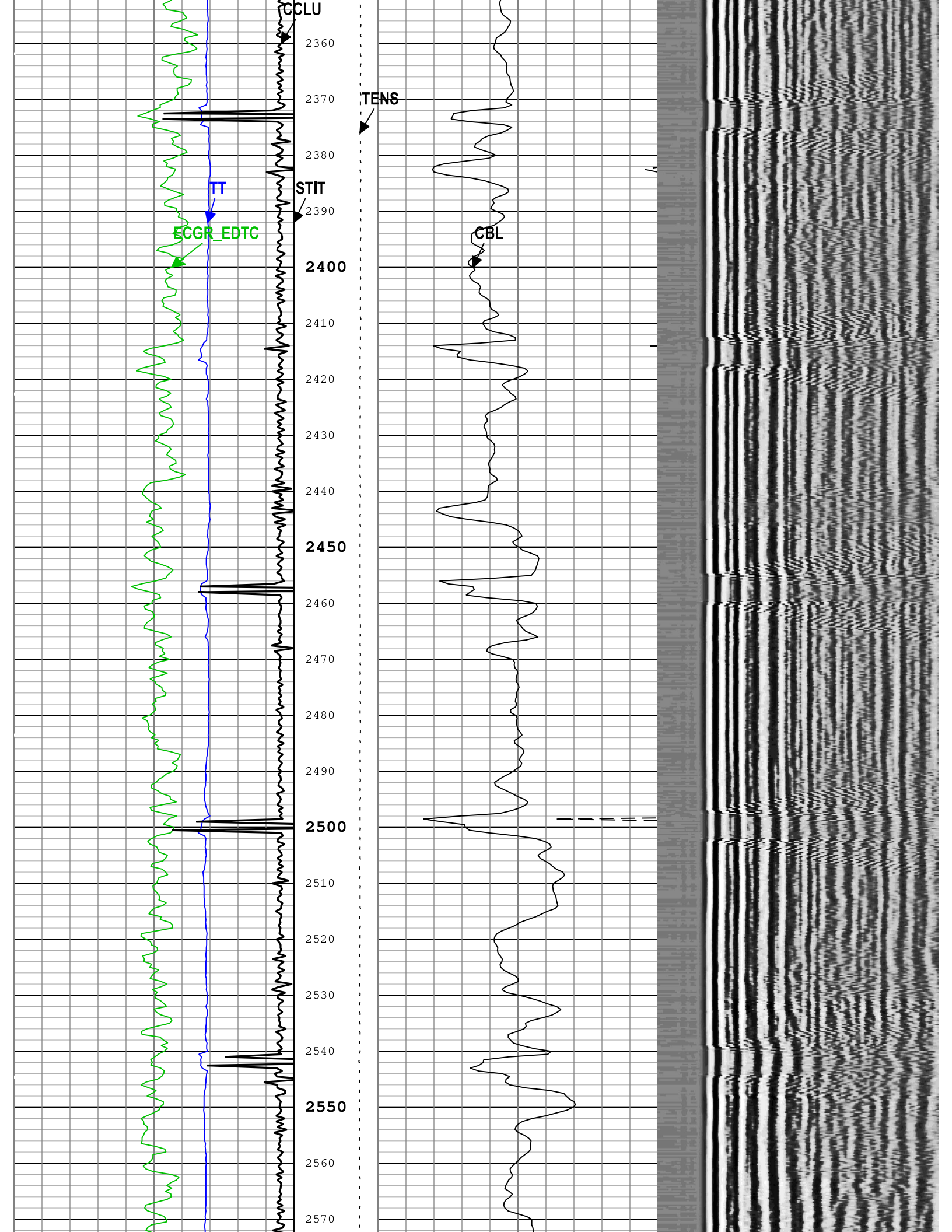
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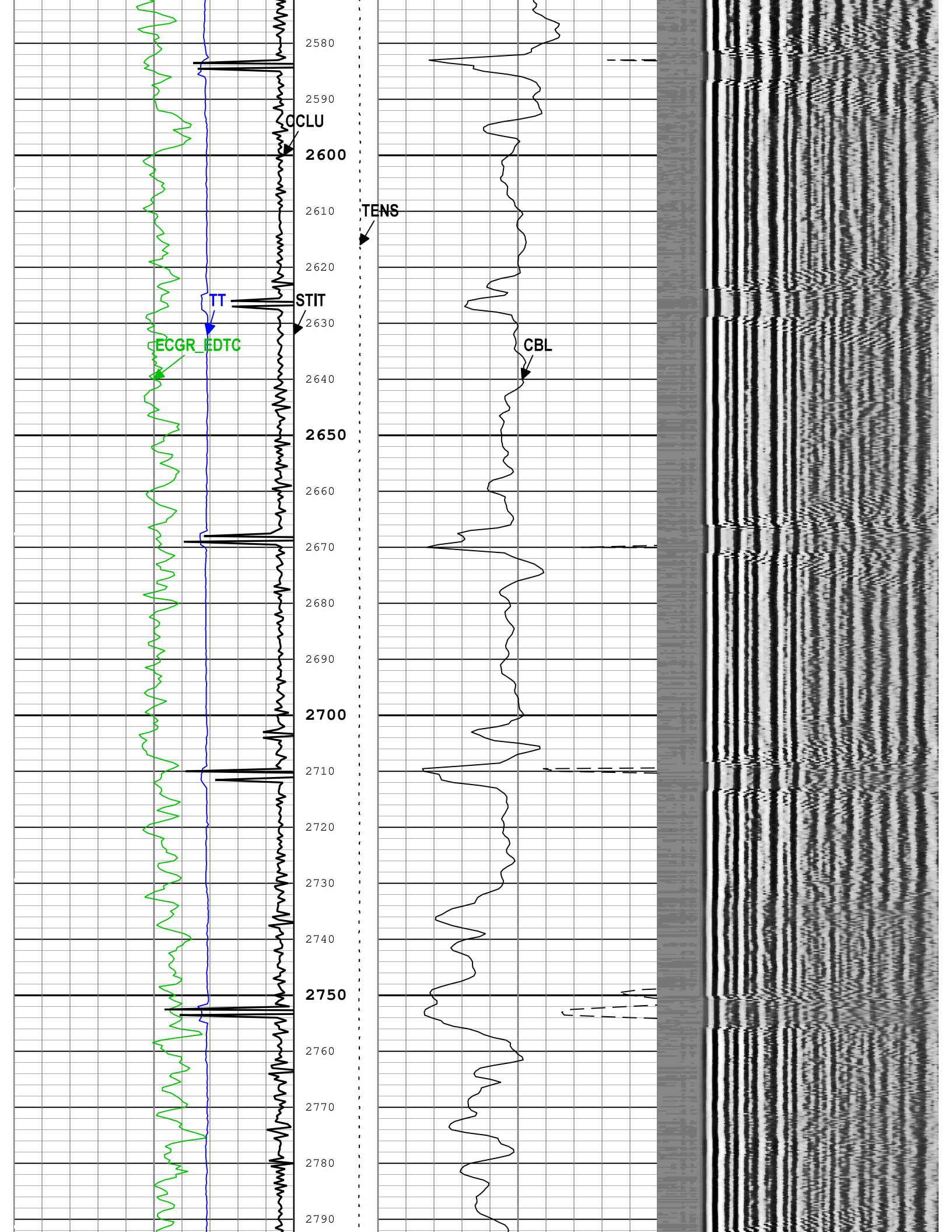
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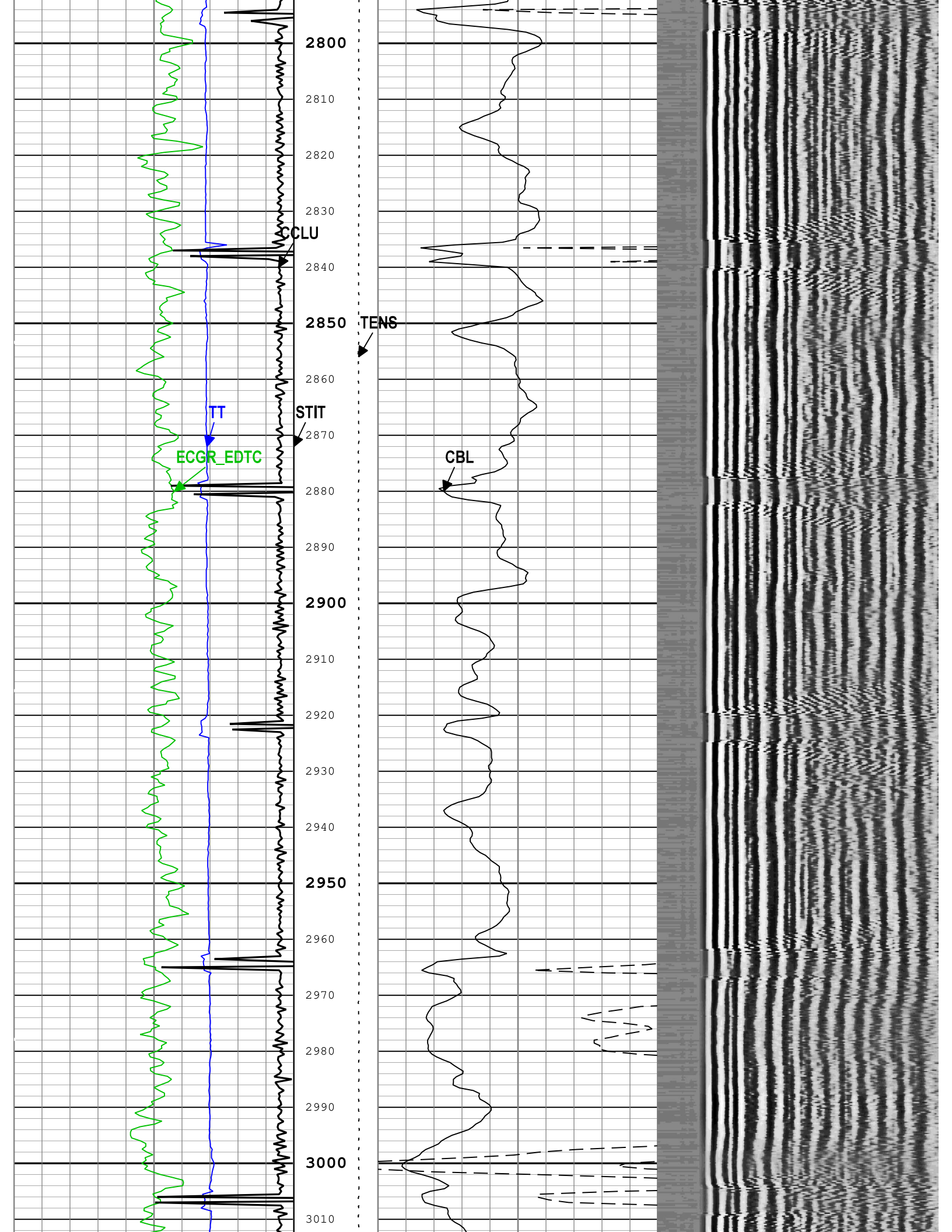
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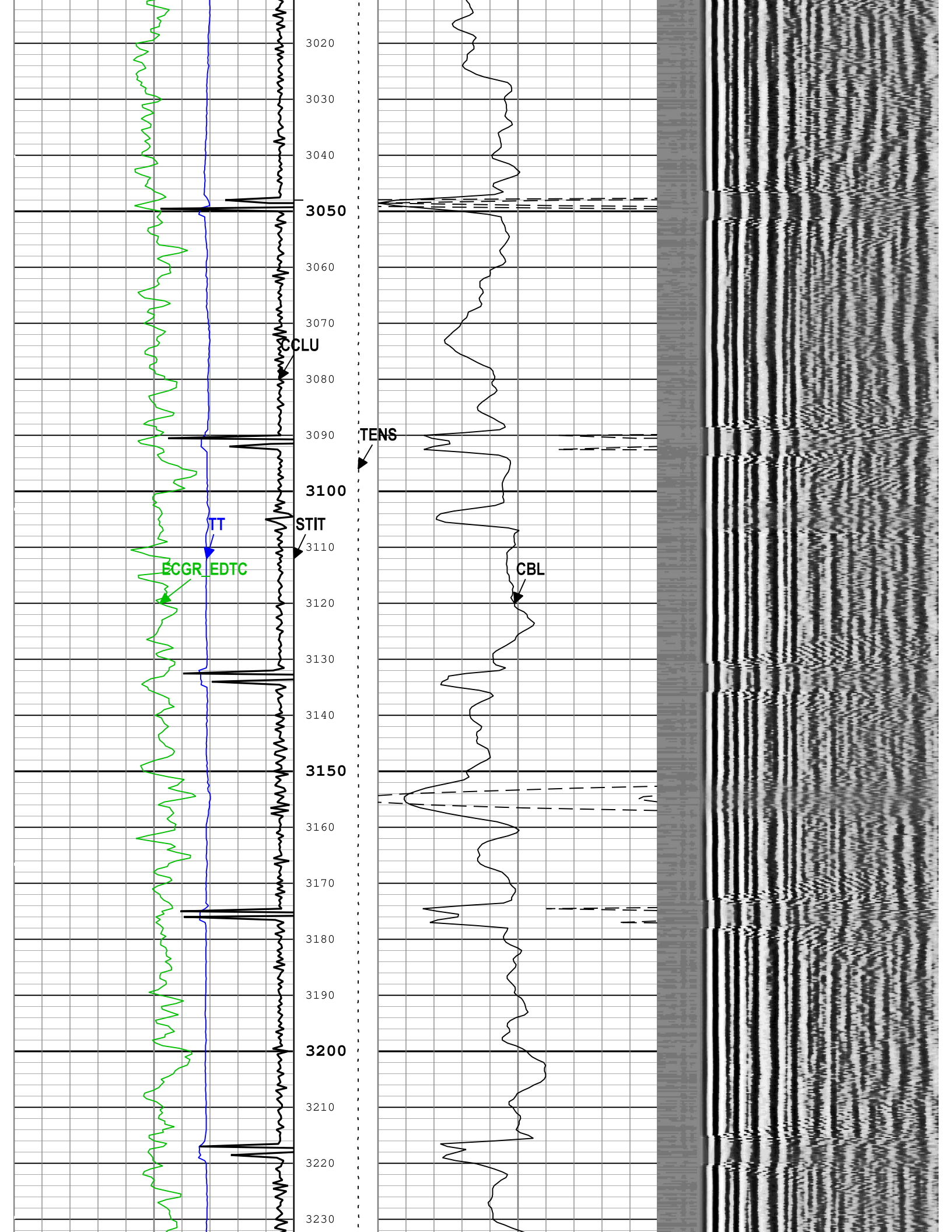
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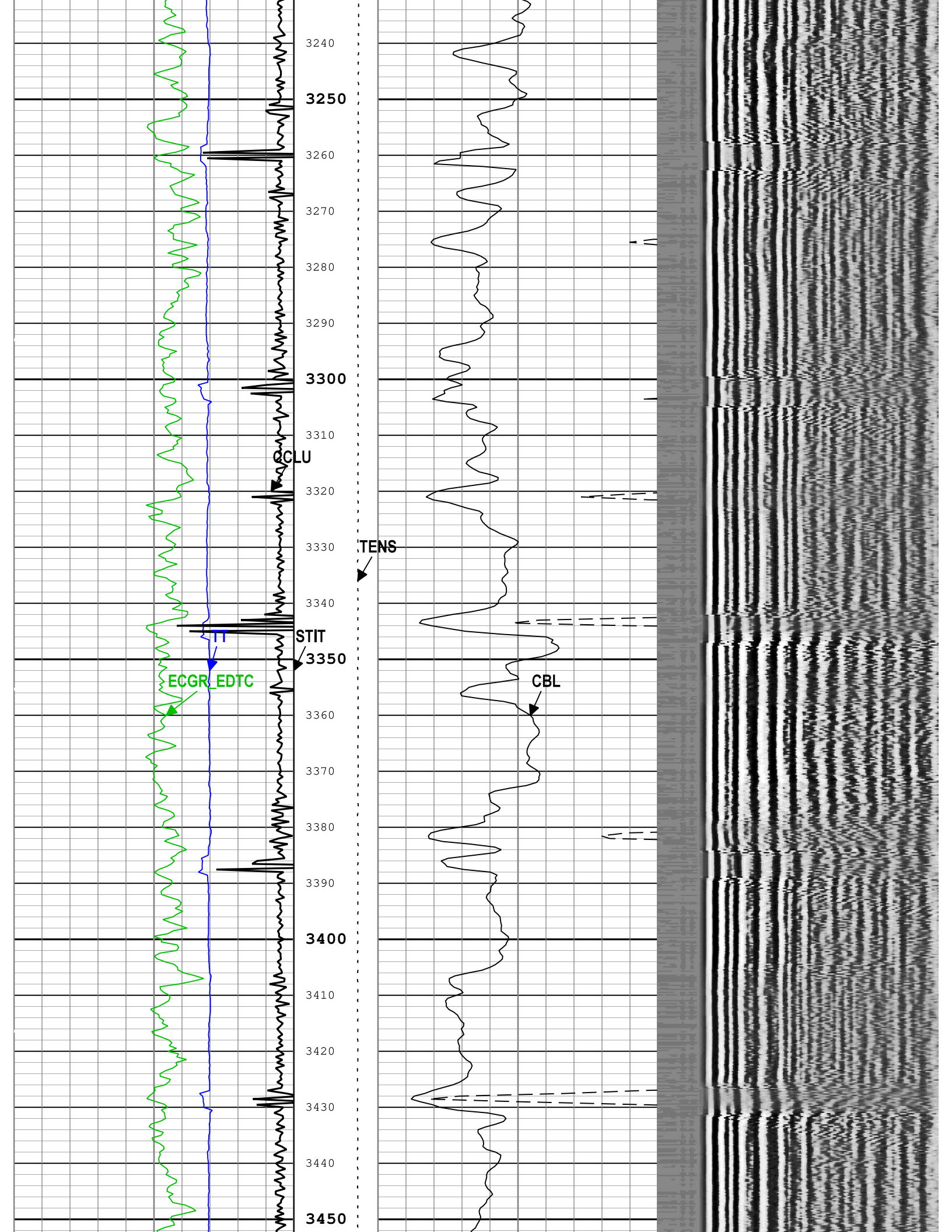
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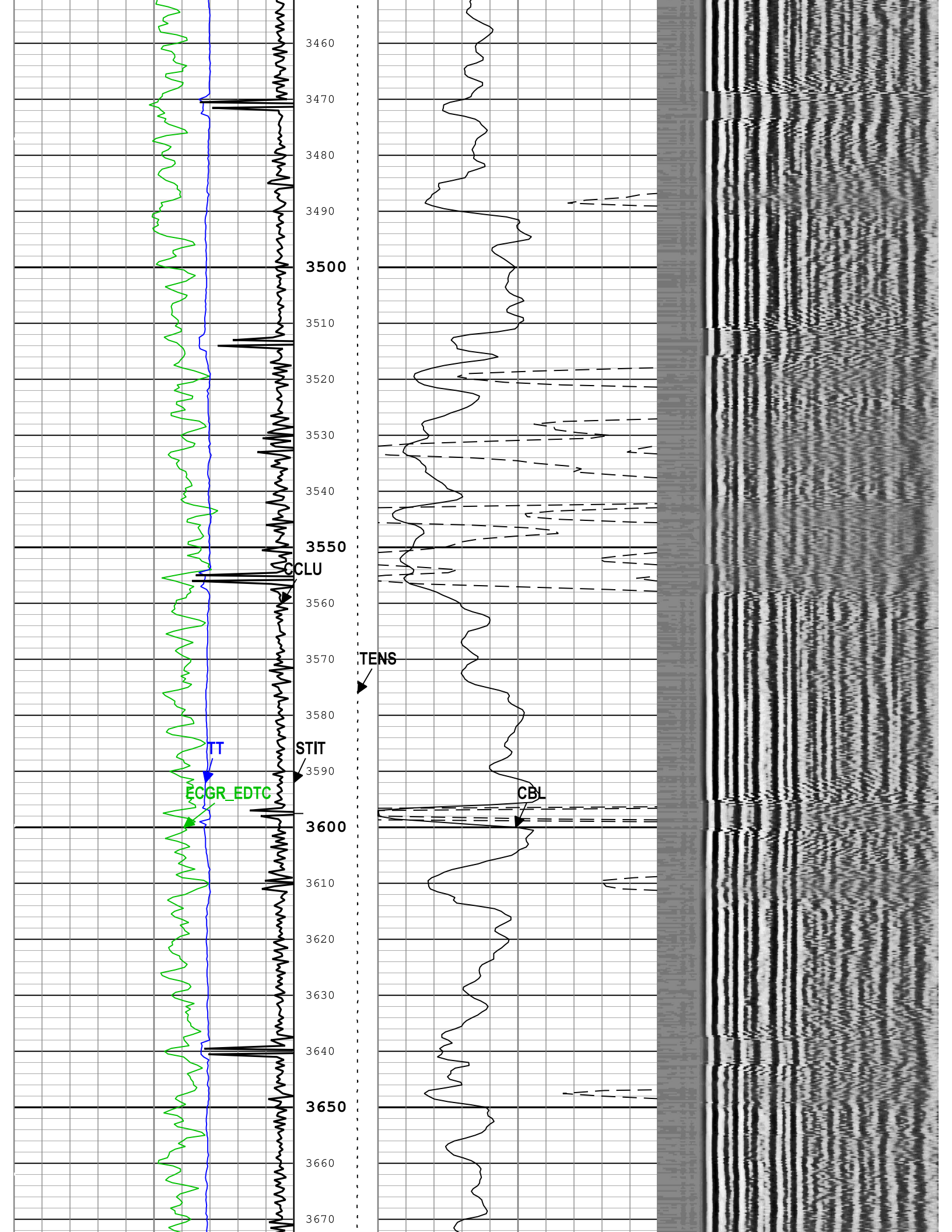
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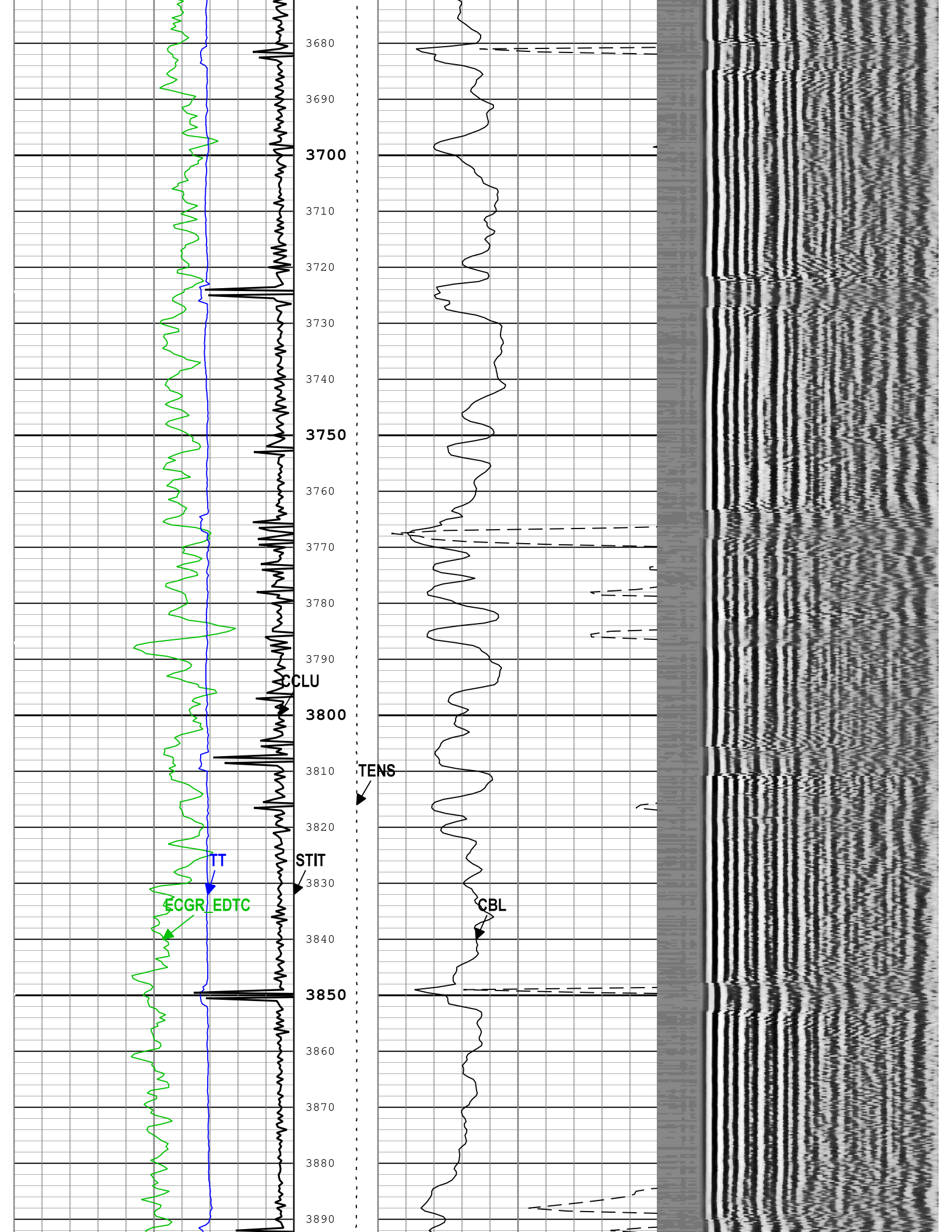
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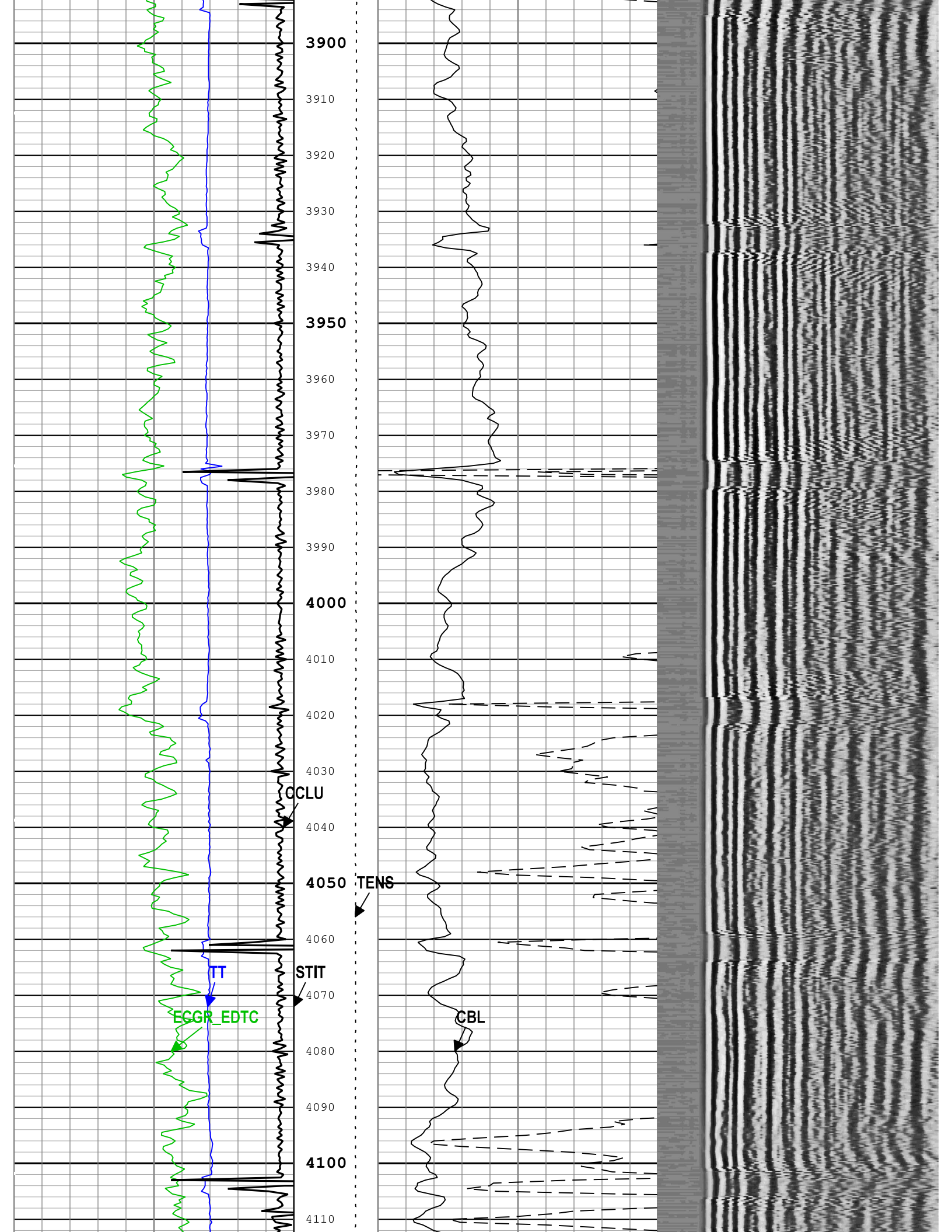
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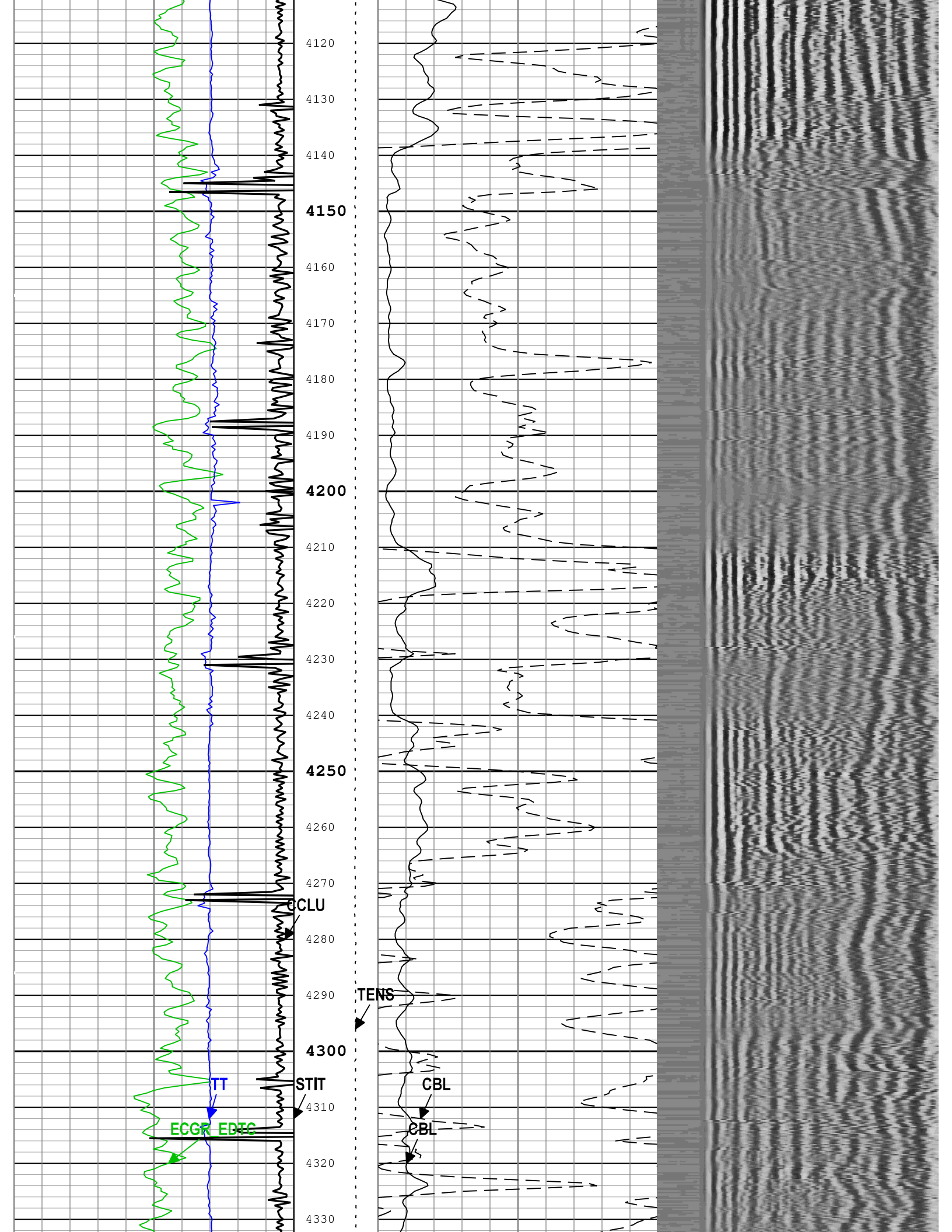
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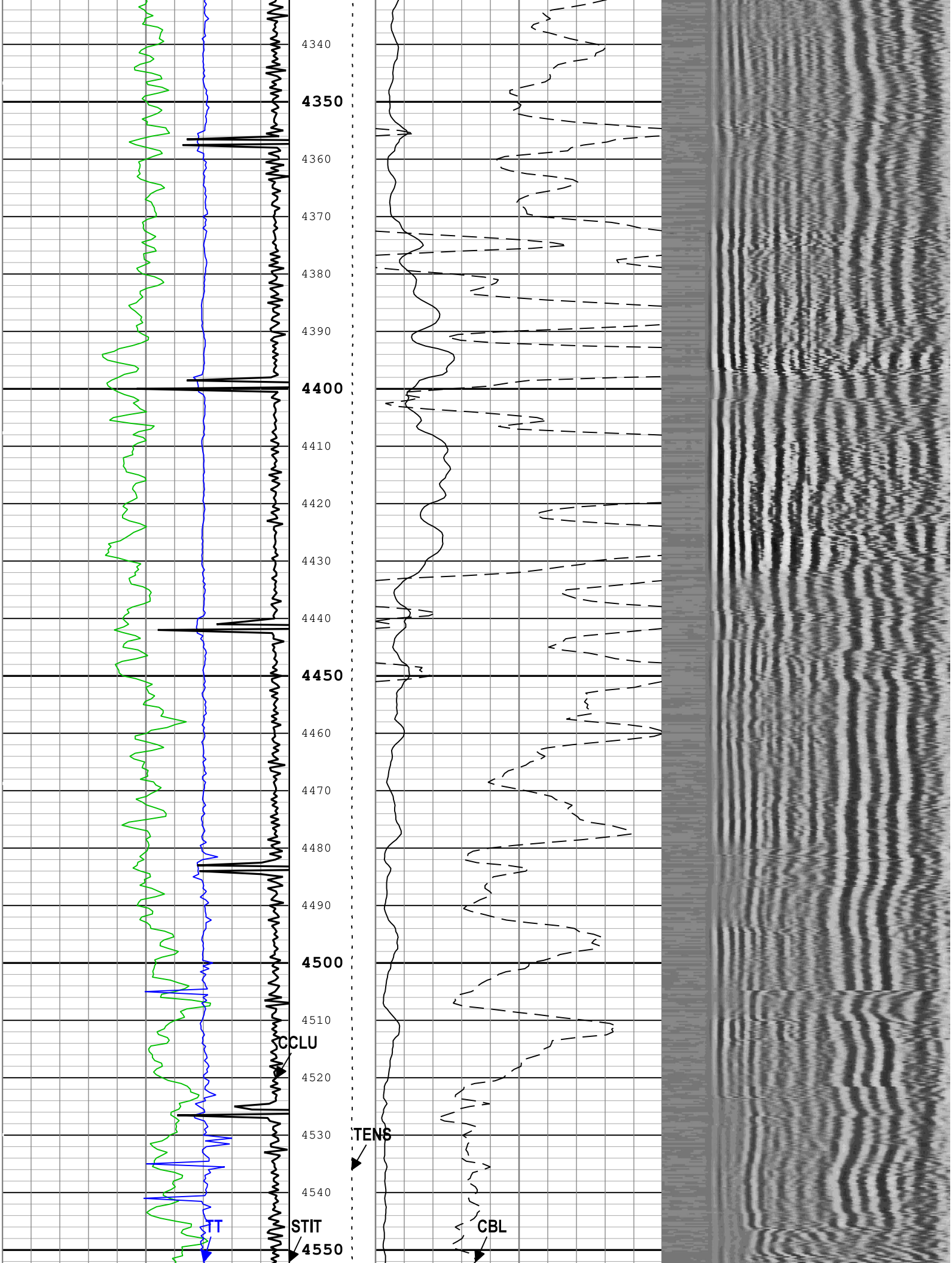
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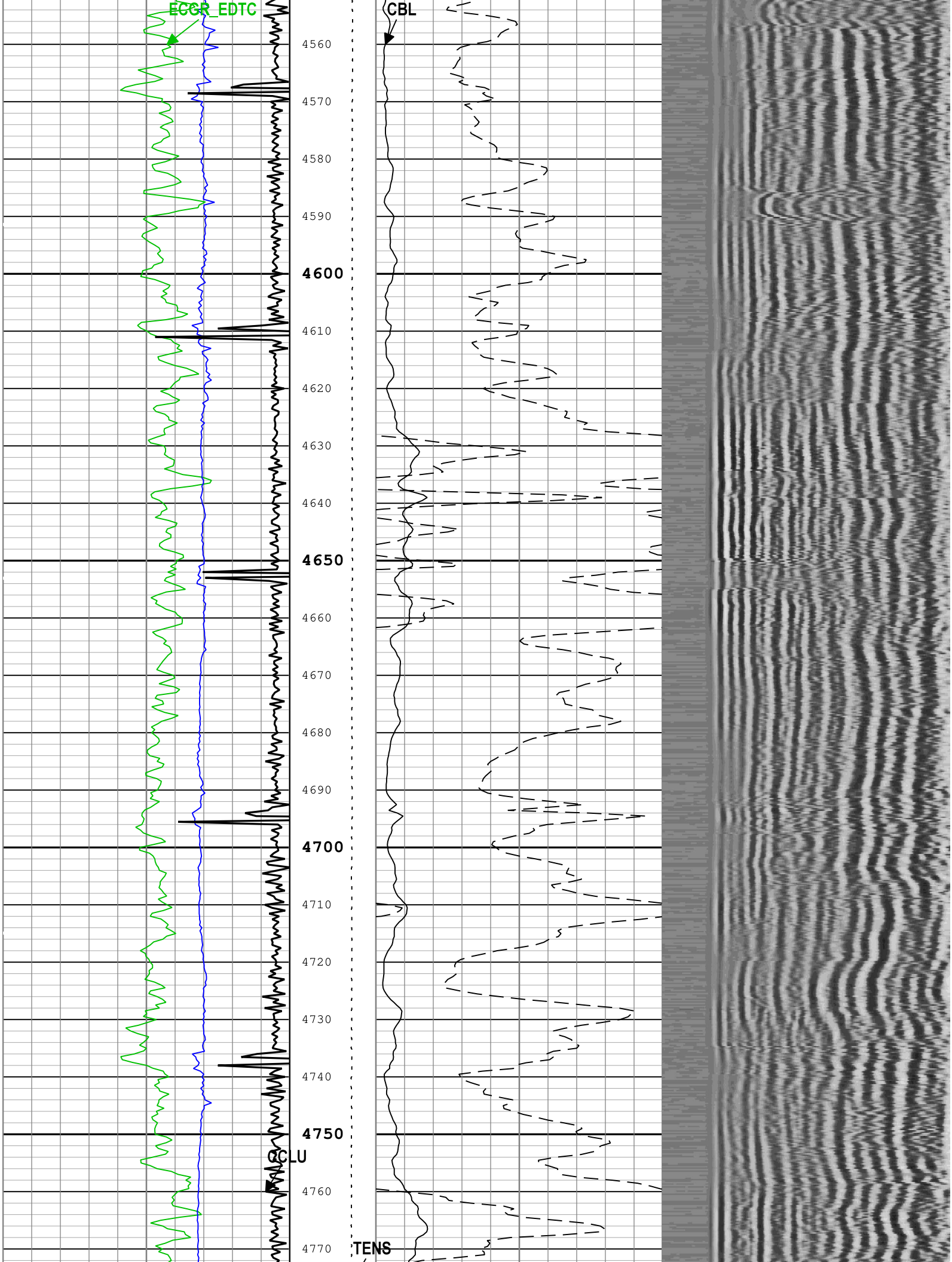
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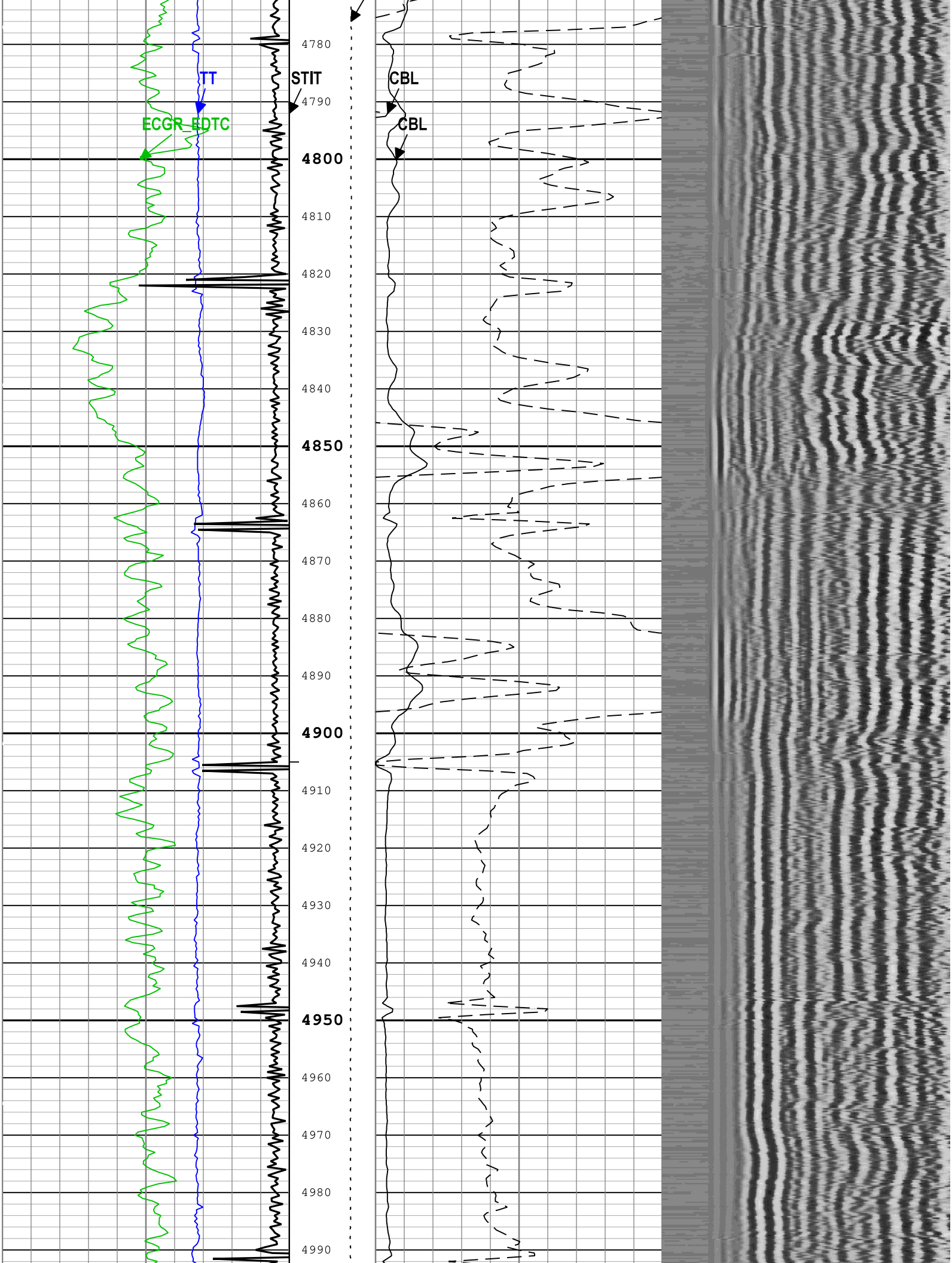
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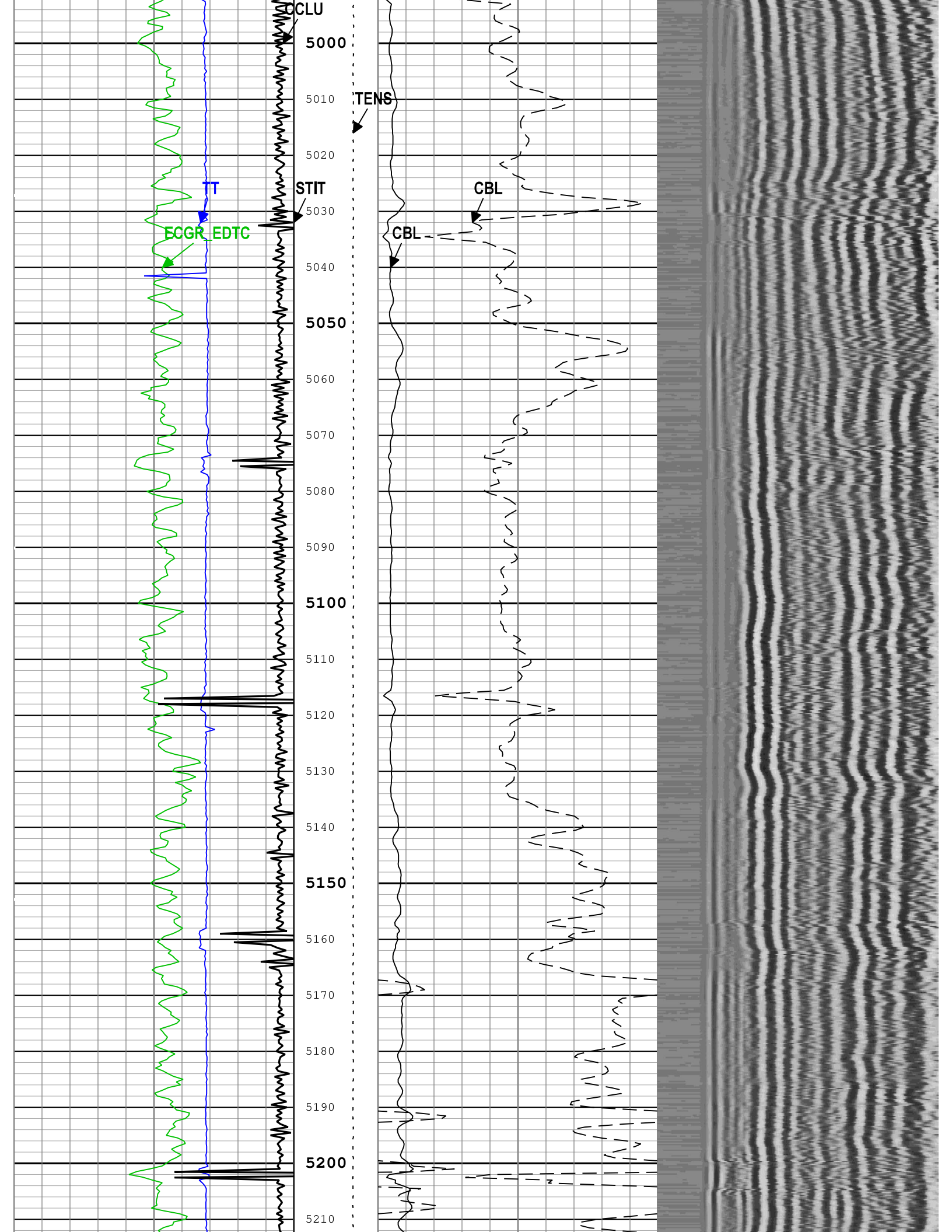
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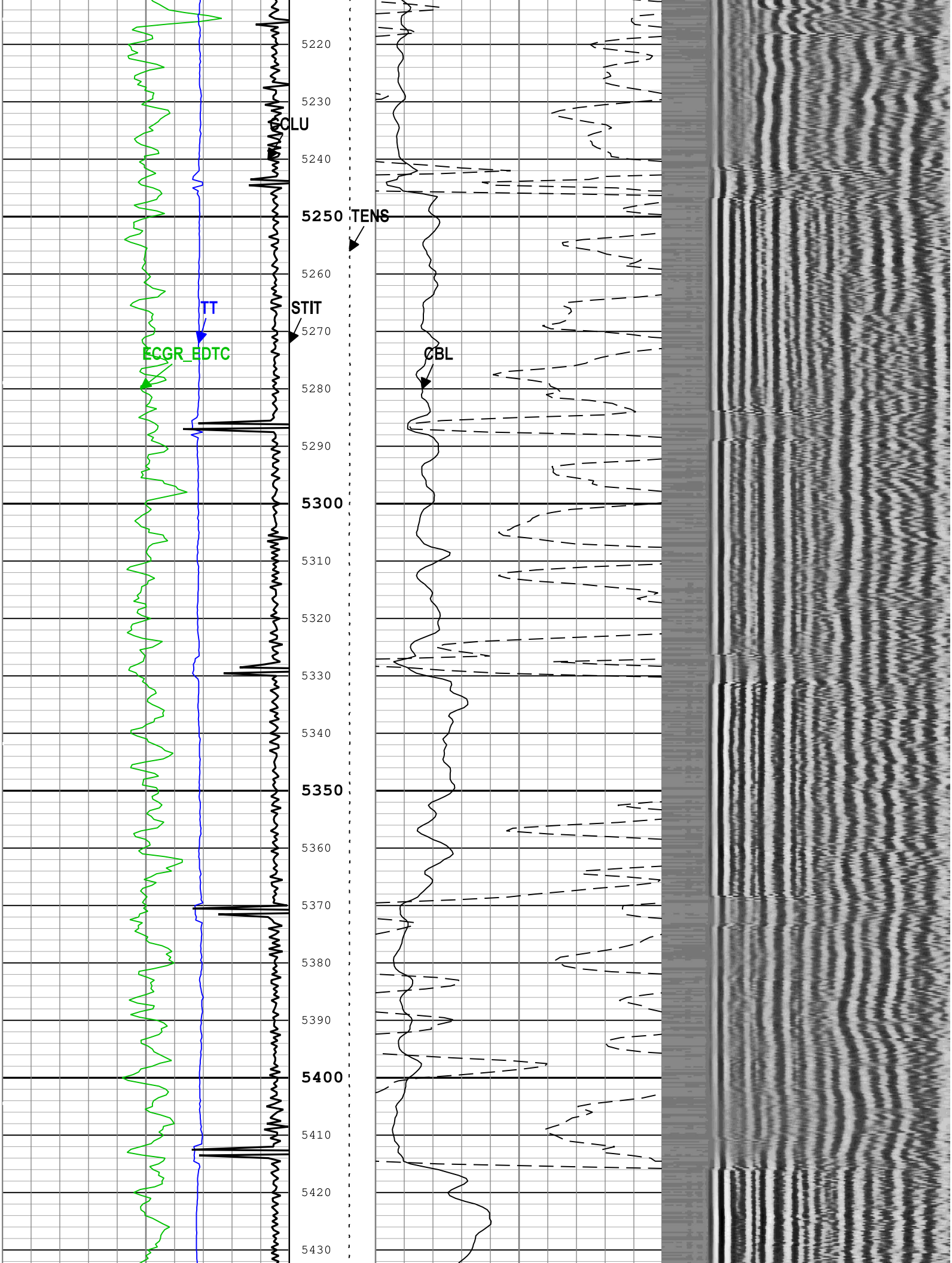
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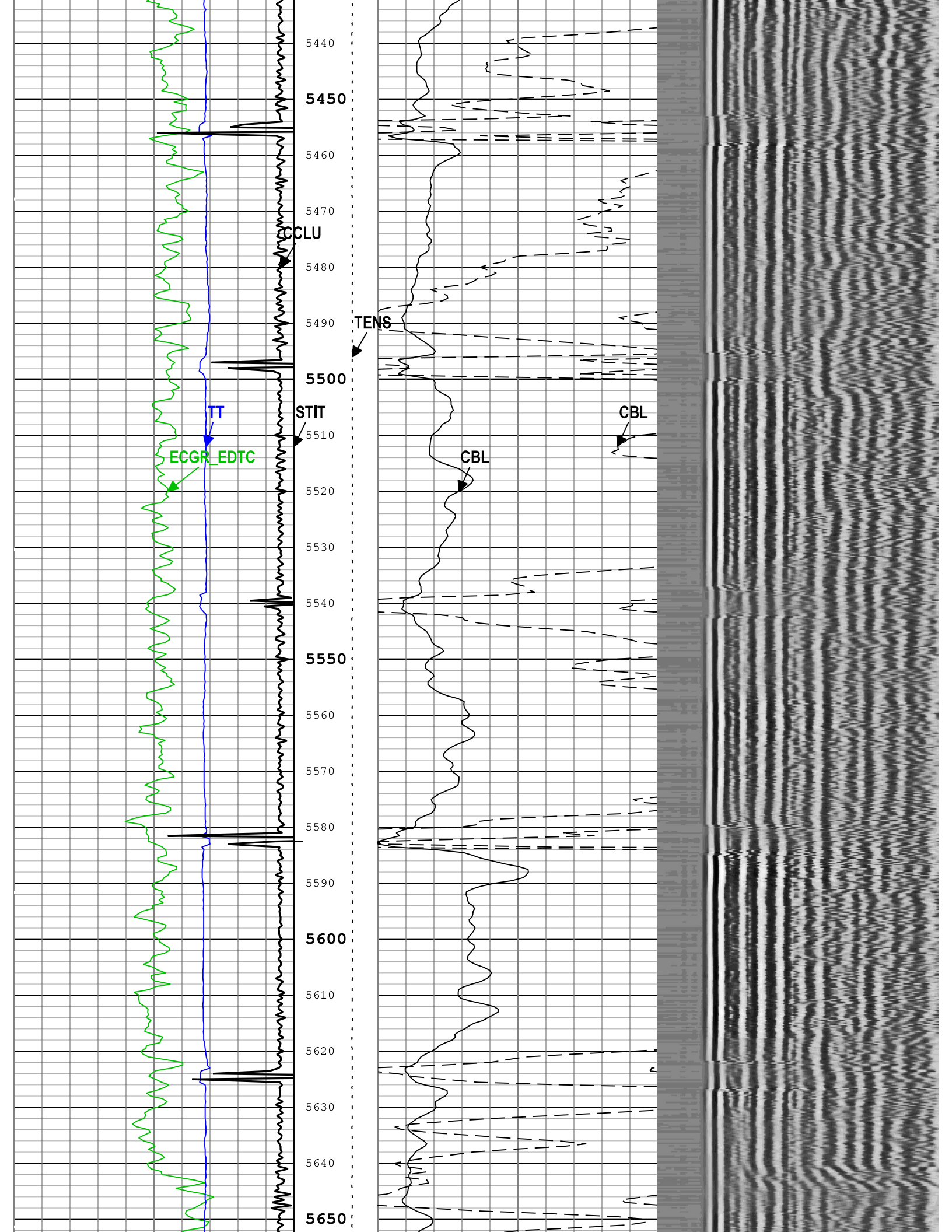
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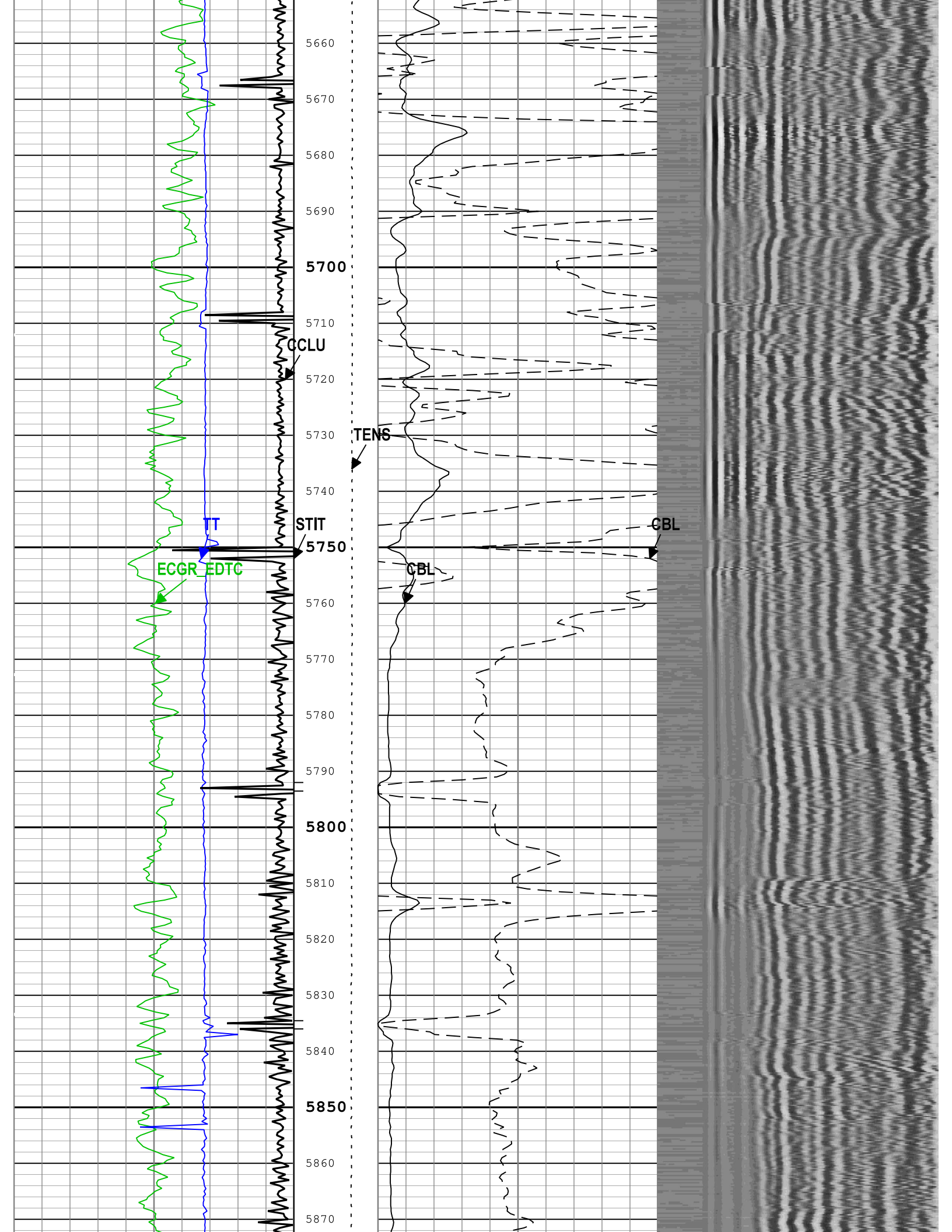
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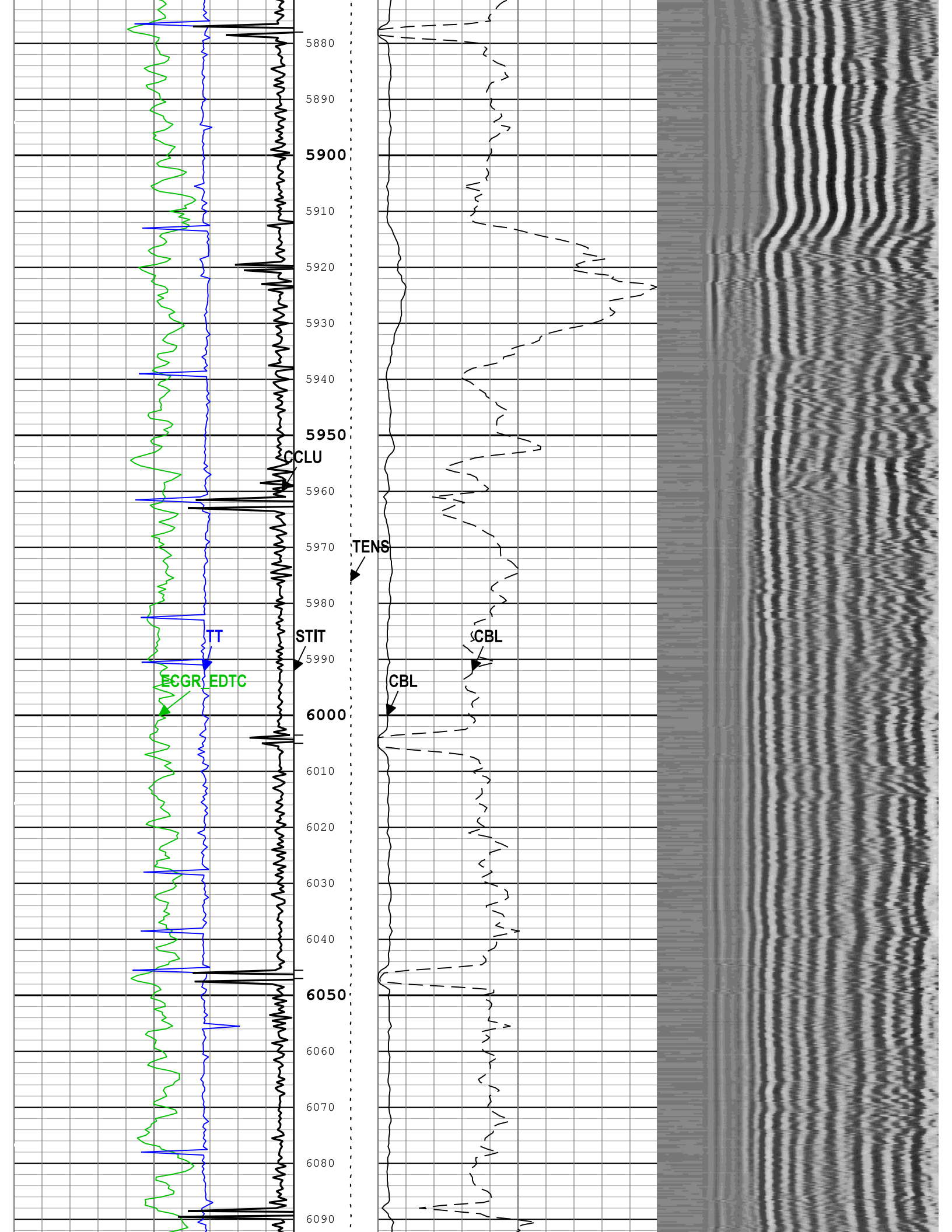
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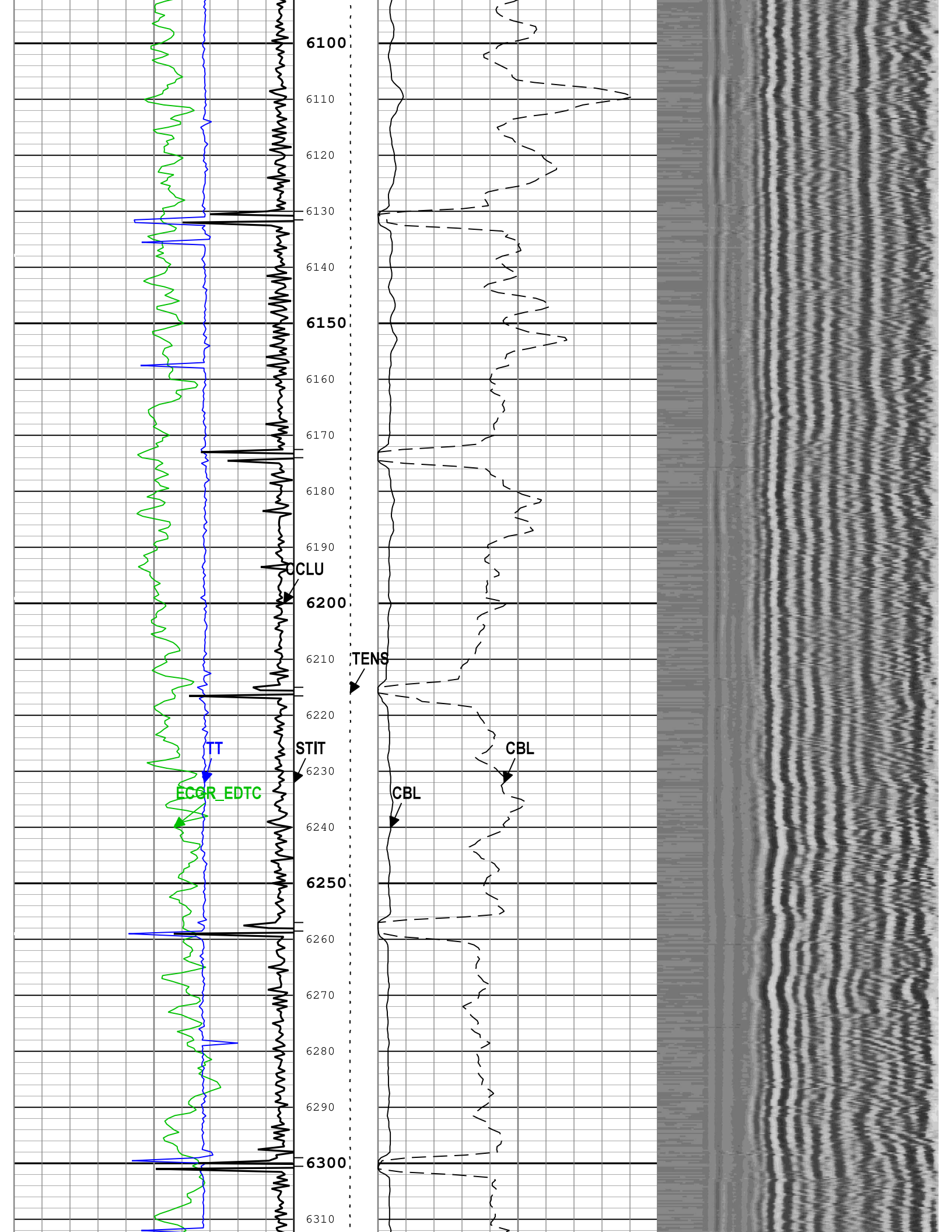
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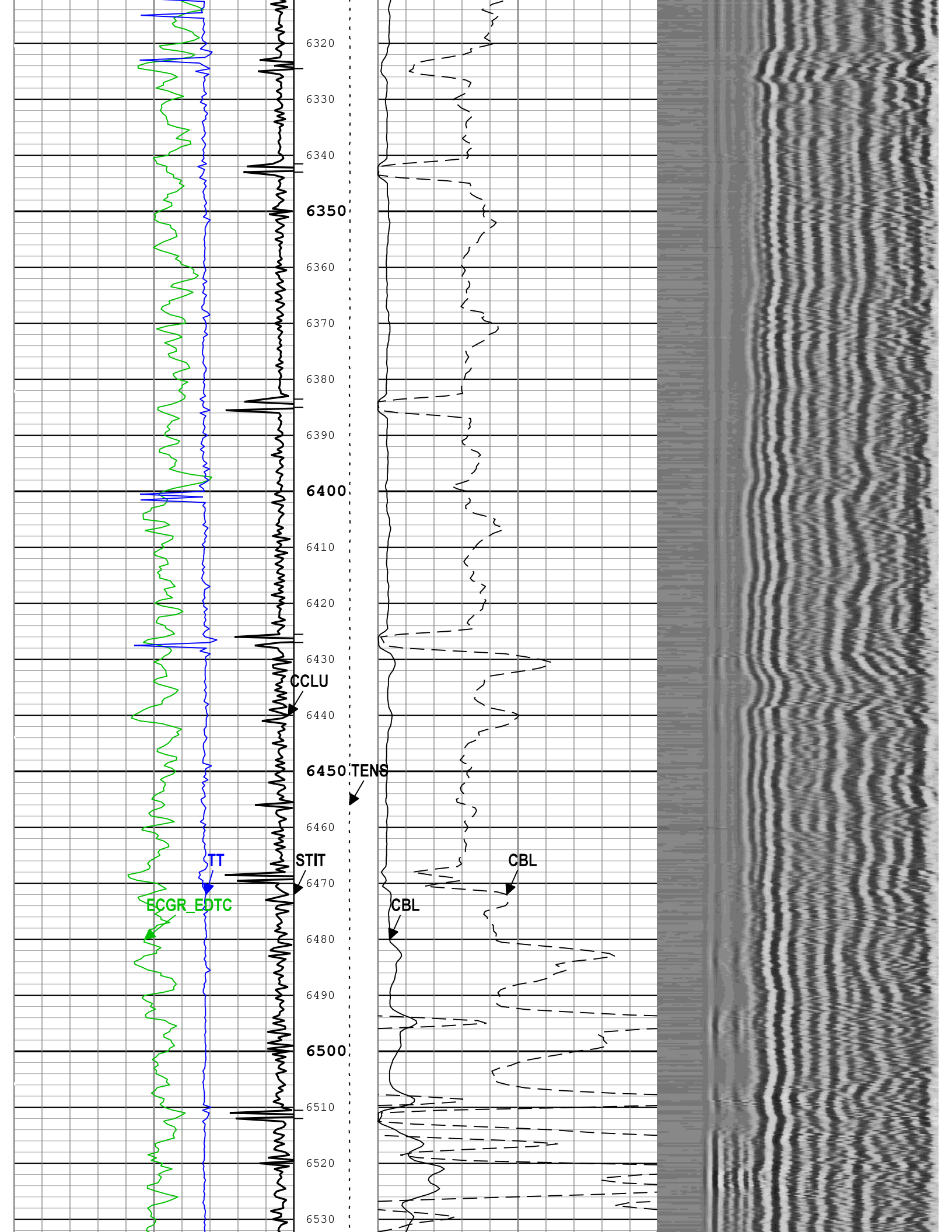
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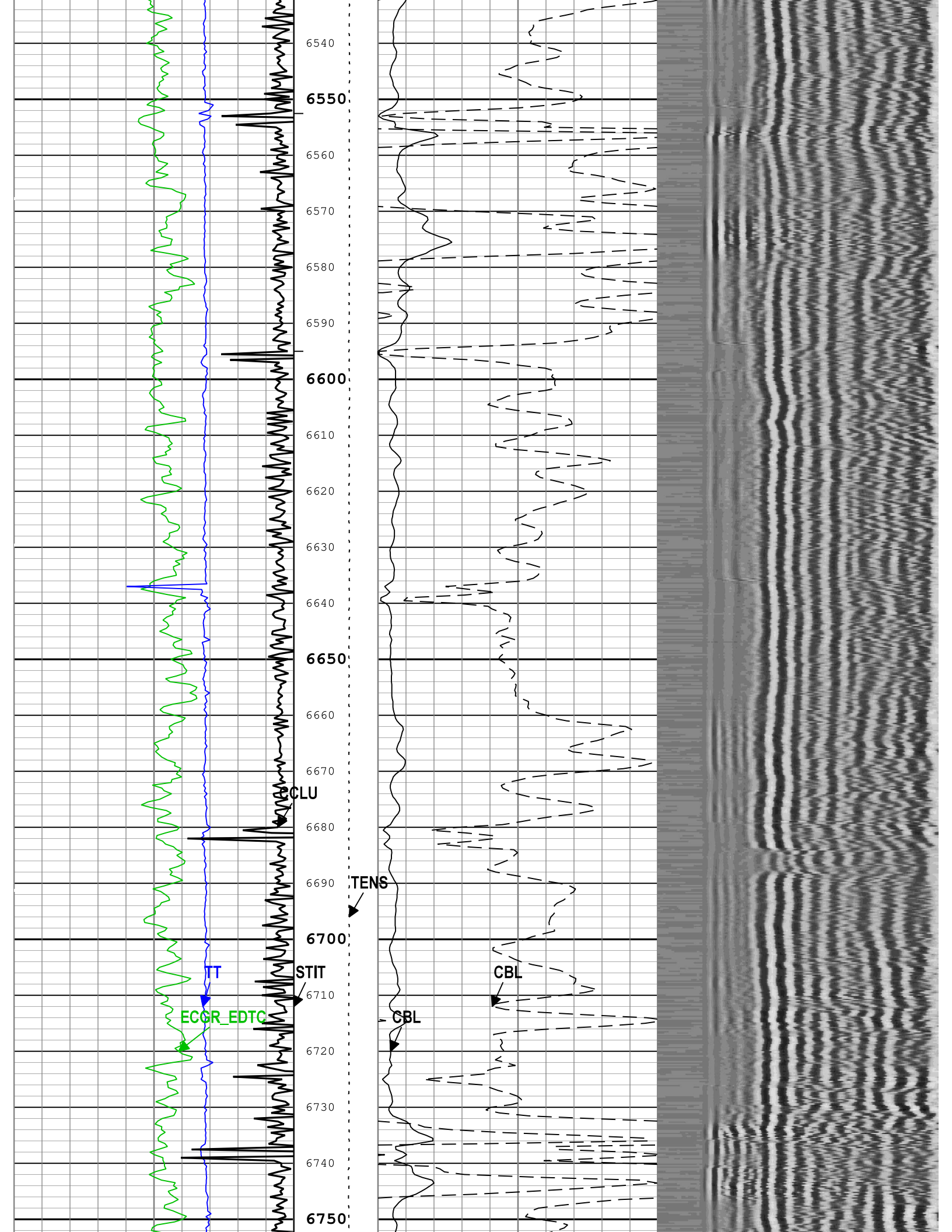
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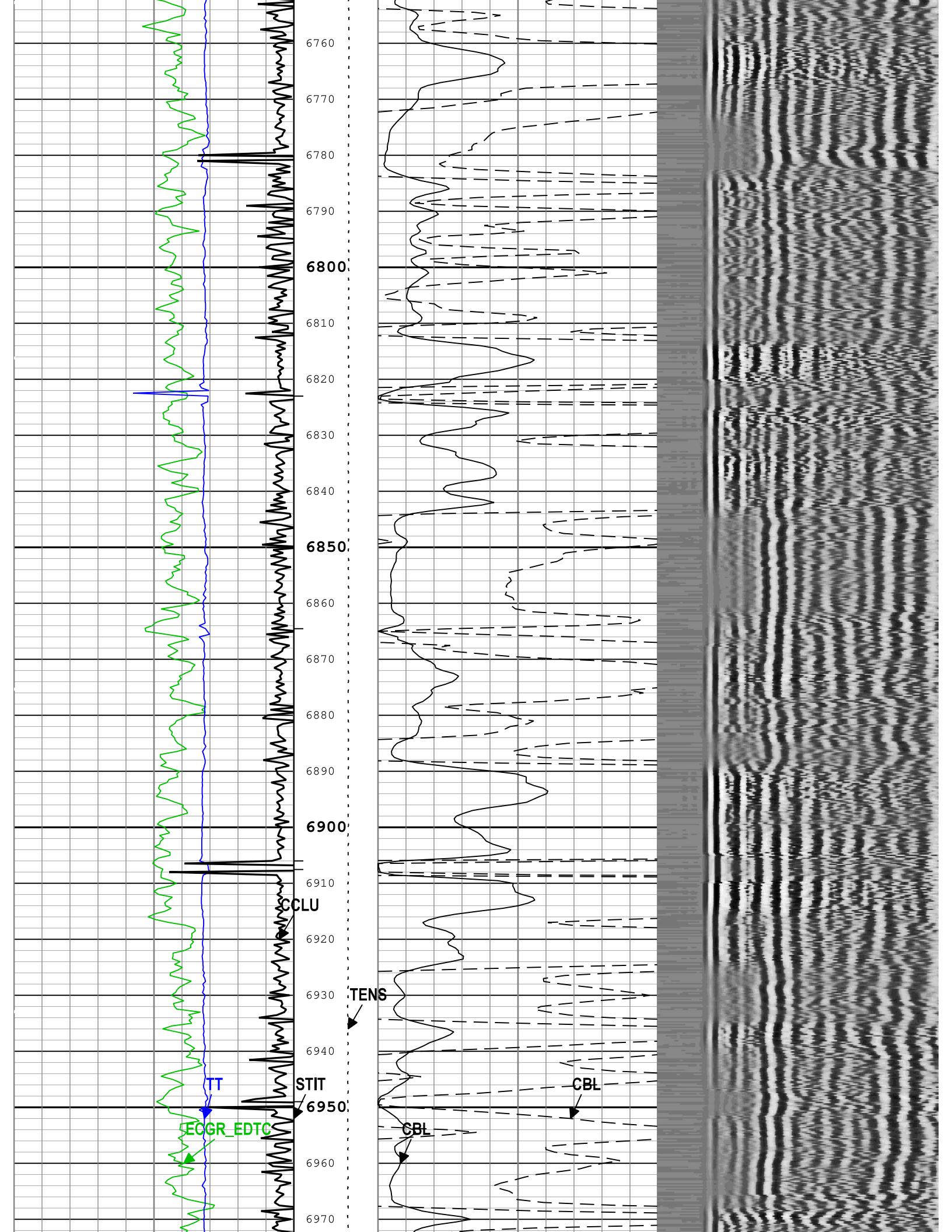
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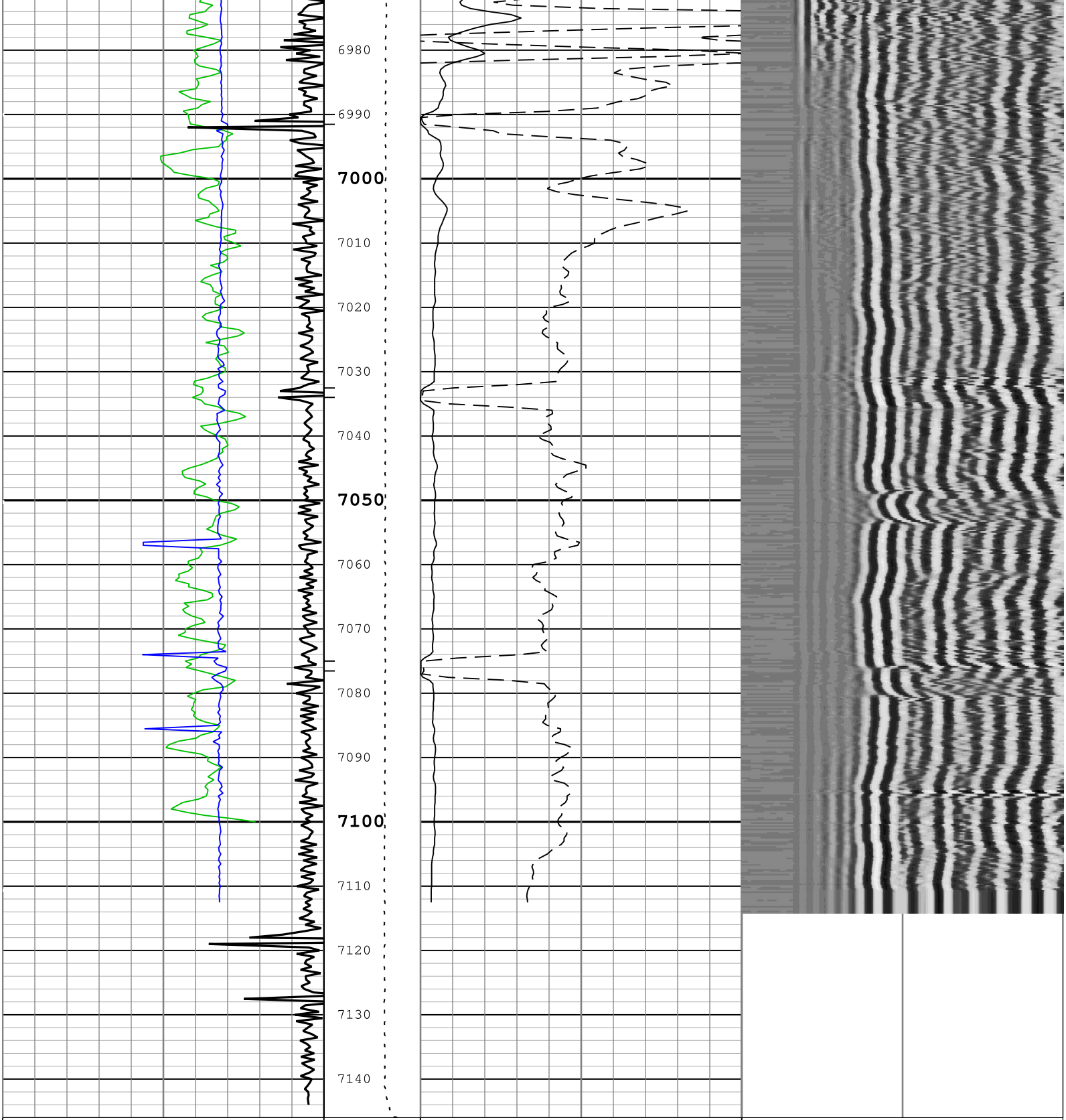
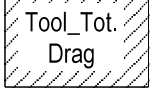


Gamma Ray (ECGR_EDTC) EDTC-B	Stuck Tool Indicator, Total (STIT)	CBL Amplitude (CBL) ASLT-B	Min Amplitude Max
0 gAPI 150	0 ft 50	0 mV 100	
Transit Time for CBL (TT) ASLT-B		CBL Amplitude (CBL) ASLT-B	Variable Density Log (VDL) ASLT-B
400 us 200		0 mV 10	100 us 600
Casing Collar Locator Ultrasonic (CCLU) USIT-E	Cable Tension (TENS)		
-19 in 1	10000 lbf 0		
	Cable Drag		



TIME_1900 - Time Marked every 60.00 (s)

BIEP - Bond Index Event Pips ASLT-B

Description: CBL_VDL Format: Log (DSLT ASLT_CBL-VDL) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Oct-2021 12:01:12

Channel Processing Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
BARI(ISSBAR)	Barite Mud Presence Flag	Borehole	No	
BHS	Borehole Status (Open or Cased Hole)	Borehole	Cased	
BS	Bit Size	WLSESSION	Depth Zoned	in
CBLO	Casing Bottom (Logger)	WLSESSION	7673	ft
CBRA	CBL LQC Reference Amplitude in Free Pipe	ASLT-B	90	mV
CDEN	Cement Density	USIT-E	0	g/cm3
CDEN	Cement Density	EDTC-B	2	g/cm3
CMTY(U-USIT_CEMT)	Cement Type	USIT-E	Regular Cement	
THNO	Nominal Casing Thickness - Zoned along logger depths	WLSESSION	0.25	in
DC_MODE	Depth Correction Mode	DepthCorrection	Real-time	
DFD	Drilling Fluid Density	Borehole	9	lbm/gal
DFT_CATEGORY	Drilling Fluid Type	Borehole	Water	
DTMD	Borehole Fluid Slowness	Borehole	206	us/ft
FD	Fluid Density	USIT-E	1.08	g/cm3
GCSE_DOWN_PASS	Generalized Caliper Selection for WL Log Down Passes	Borehole	BS(RT)	
GCSE_UP_PASS	Generalized Caliper Selection for WL Log Up Passes	Borehole	BS(RT)	
GOBO	Good Bond	ASLT-B	1.52	mV
GOBO_CURR	Good Bond in Arbitrary Cement	ASLT-B	1.52	mV
HEMA	Hematite Presence Flag	Borehole	No	
IBC_FRP_OFFSET	IBC Flexural Offset from Free Pipe	USIT-E	5.13	dB/m
IBC_FVEL_SEL	IBC Fluid Velocity Selection	USIT-E	Automatic	
IBC_OFFSET_SEL	IBC Flexural Offset Selector	USIT-E	IBC_FRP_OFFSET	
IBC_ZMUD_SEL	IBC Mud Impedance Selection	USIT-E	Theoretical	
IMAR	Image Rotation	USIT-E	Off	
MATT_CURR	Maximum Attenuation in Arbitrary Cement	ASLT-B	16.92	dB/ft
MCI	Minimum Cemented Interval for Isolation	ASLT-B	Depth Zoned	ft
MEAS_WLEN	Tcube Processing Window Length in Measurement Mode	USIT-E	15.37	us
MSA	Minimum Sonic Amplitude	ASLT-B	0.55	mV
MSA_CURR	Minimum Sonic Amplitude in Arbitrary Cement	ASLT-B	0.55	mV
MUD_N_FRP	Free Pipe Mud Normalization Factor	USIT-E	1.09	
MUD_N_THE	Theoretical Mud Normalization Factor	USIT-E	1.09	
RUN_SNUM	Run Sequence Number	WSDRUN	1	
U-USIT_DFSZ	Drilling Fluid Specific Acoustic Impedance	USIT-E	1.6	Mrayl
U-USIT_UFAO	USIT Flexural Attenuation Offset	USIT-E	25	dB/m
UFSFILT	Ultrasonic Flexural Surface Filter	USIT-E	LPF 250k	
U-USIT_UIAP	IBC Answer Product Enabled	USIT-E	ThirdInterfaceEcho	
ZMUD	Acoustic Impedance of Mud	Borehole	1.75	Mrayl
ZTCM	Acoustic Impedance Threshold for Cement	USIT-E	2.6	Mrayl
ZTGS	Acoustic Impedance Threshold for Gas	USIT-E	0.3	Mrayl

Depth Zone Parameters

Parameter	Value	Start (ft)	Stop (ft)
BS	12.25	0	955
BS	7.875	955	7146
MCI	12.98	0	945
MCI	1.25	945	7146

All depth are actual.

Tool Control Parameters

One: Parameters

Parameter	Description	Tool	Value	Unit
AGMN	Minimum Gain of Cartridge	USIT-E	-12	dB
AGMX	Maximum Gain of Cartridge	USIT-E	54	dB
EMXV	EMEX Voltage	USIT-E	Time Zoned	V
IBC_ACQTYPE	IBC Acquisition type	USIT-E	1 MHz	
IBC_FLEXDBP	IBC Flex Duration Before Peak	USIT-E	30	us
ICE2_ACQ	Ultrasonic ICE2 Acquisition	USIT-E	Yes	
MAX_LOG_SPEED	Toolstring Maximum Logging Speed	WLSESSION	4010	ft/h
MODE	SSLT Firing Mode	ASLT-B	Attenuation	
UPAT	USIT Emission Pattern	USIT-E	Pattern 750 KHz	
UWKM	USIT Working Mode	USIT-E	10 deg at 6.0 in	
U-USIT_UTAN	Transducer Angles	USIT-E	33_DEG	
VDM	SSLT VDL Display Mode	ASLT-B	R5	
VRES	Vertical Resolution	USIT-E	6.0 in	

Time Zone Parameters

Parameter	Value	Start Time	Stop Time	Start Depth (ft)	Stop Depth (ft)
EMXV	10	20-Oct-2021 08:48:13	20-Oct-2021 08:49:54	7146.02	7055.42
EMXV	12	20-Oct-2021 08:49:54	20-Oct-2021 09:29:07	7055.42	4645.01
EMXV	10	20-Oct-2021 09:29:07	20-Oct-2021 09:33:58	4645.01	4348.36
EMXV	8	20-Oct-2021 09:33:58	20-Oct-2021 09:58:17	4348.36	2835.18
EMXV	6	20-Oct-2021 09:58:17	20-Oct-2021 10:24:48	2835.18	1188.39
EMXV	5	20-Oct-2021 10:24:48	20-Oct-2021 10:28:18	1188.39	981.13
EMXV	4	20-Oct-2021 10:28:18	20-Oct-2021 10:31:46	981.13	761.46
EMXV	5	20-Oct-2021 10:31:46	20-Oct-2021 10:31:54	761.46	752.3
EMXV	4	20-Oct-2021 10:31:54	20-Oct-2021 10:45:13	752.3	24.56

All depth are at tool zero.

One

Repeat Analysis

Pass Summary

Run Name	Pass Objective	Direction	Top	Bottom	Start	Stop	DSC Mode	Depth Shift	Include Parallel Data
One	Log[2]:Up	Up	1694.34 ft	2200.60 ft	20-Oct-2021 8:05:48 AM	20-Oct-2021 8:14:53 AM	ON	-1.83 ft	Yes
One	Log[4]:Up	Up	24.56 ft	7146.03 ft	20-Oct-2021 8:48:13 AM	20-Oct-2021 10:45:13 AM	ON	5.00 ft	Yes

All depths are referenced to toolstring zero

Log

Company:Occidental Petroleum Inc Well:Cooley 13-16

One: Log[4]:Up:S005

Description: CBL_VDL Format: Log (DSLT ASLT_CBL-VDL RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date:

20-Oct-2021 12:01:41

BIEP - Bond Index Event Pips ASLT-B

TIME_1900 - Time Marked every 60.00 (s)

Main To Repeat

Repeat To Main

Gamma Ray (ECGR_EDTC) EDTC-B

0 gAPI 150

Main To Repeat

Repeat To Main

Transit Time for CBL (TT) ASLT-B

400 us 200

Main To Repeat

Repeat To Main

Casing Collar Locator Ultrasonic (CCLU) USIT-E

-19 in 1

Main To Repeat

Repeat To Main

Cable Tension (TENS)

10000 0 lbf

Main To Repeat

Repeat To Main

Stuck Tool Indicator, Total (STIT)

0 ft 50

Main To Repeat

Repeat To Main

CBL Amplitude (CBL) ASLT-B

0 mV 10

Main To Repeat

Repeat To Main

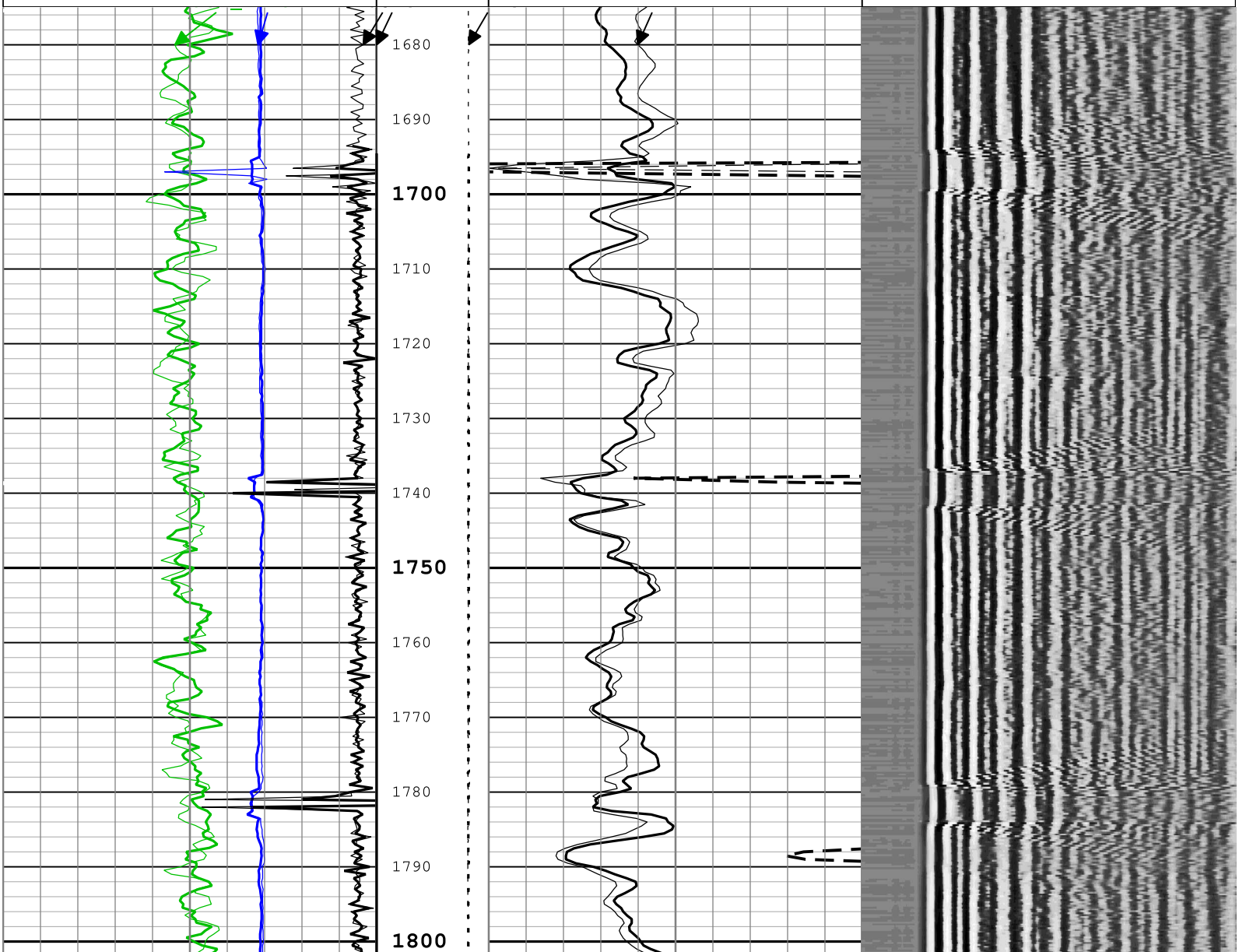
CBL Amplitude (CBL) ASLT-B

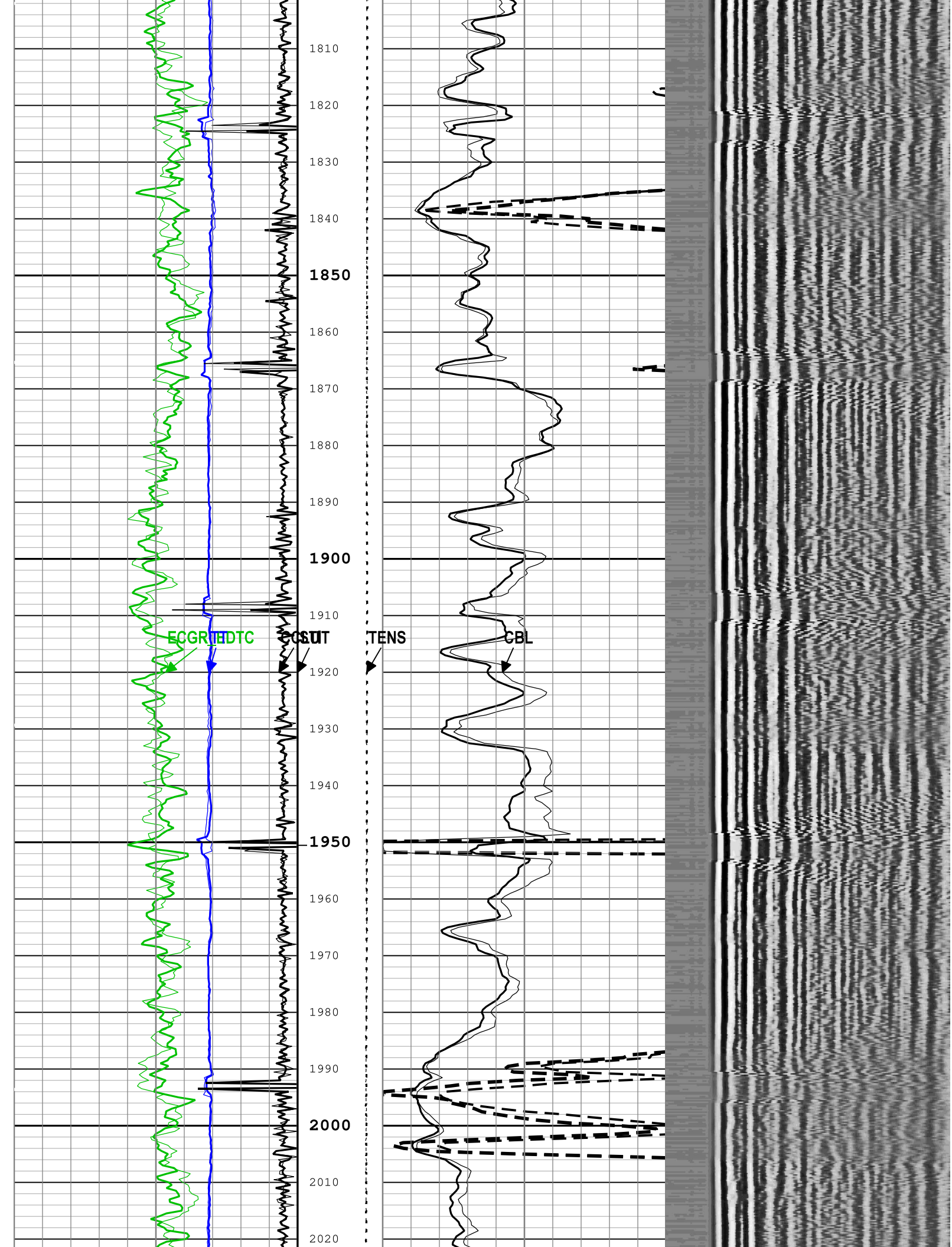
0 mV 100

Min Amplitude Max

Variable Density Log (VDL) ASLT-B

100 us 600

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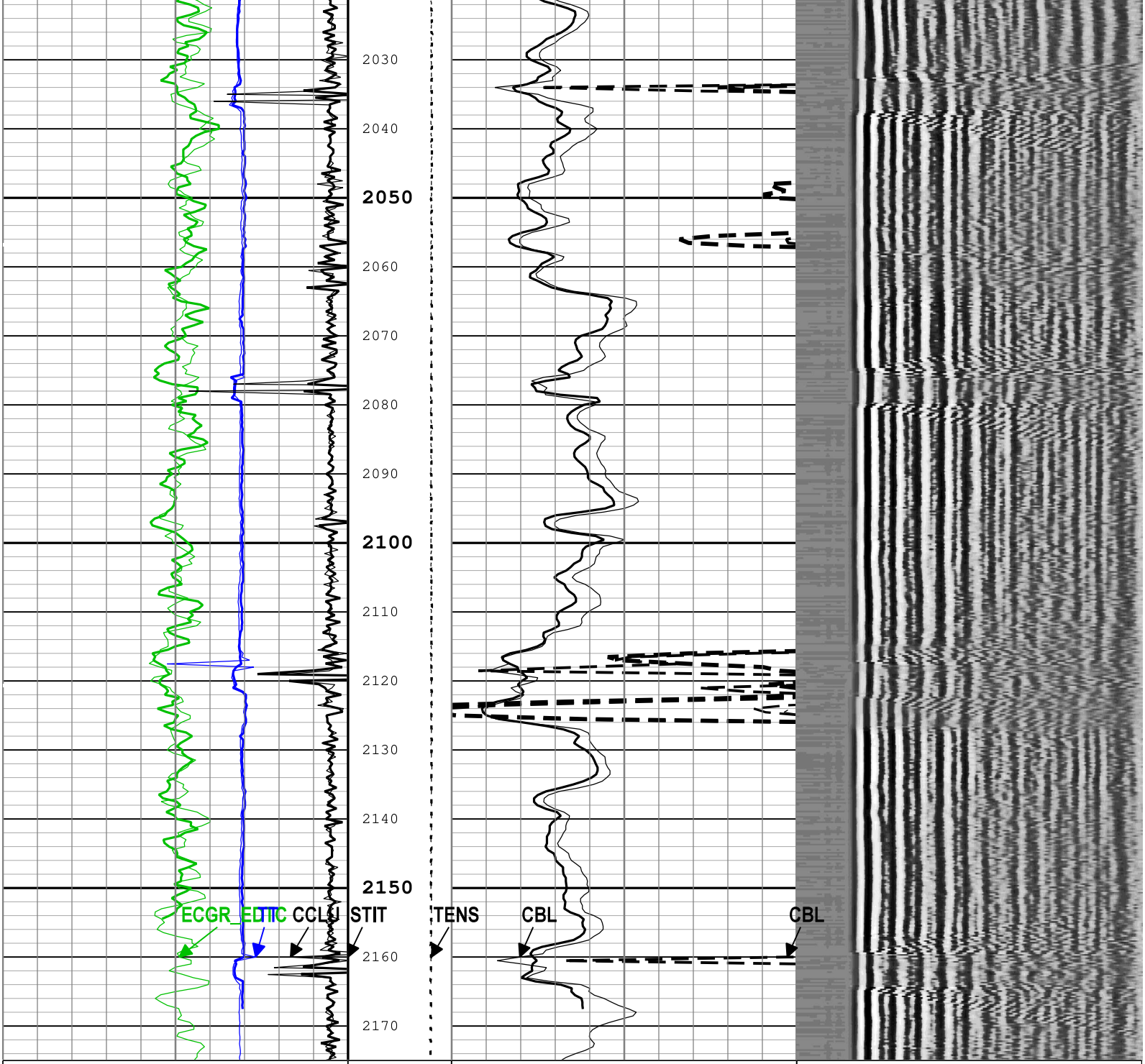


Main To Repeat

Repeat To Main

Gamma Ray (ECGR_EDTC) EDTC-B

0 gAPI 150

Main To Repeat

Repeat To Main

Transit Time for CBL (TT) ASLT-B

400 us 200

Main To Repeat

Repeat To Main

Casing Collar Locator Ultrasonic (CCLU)

Main To Repeat

Repeat To Main

Cable Tension (TENS)

10000 0 lbf

Main To Repeat

Repeat To Main

Stuck Tool

Main To Repeat

Repeat To Main

CBL Amplitude (CBL) ASLT-B

0 mV 10

Main To Repeat

Repeat To Main

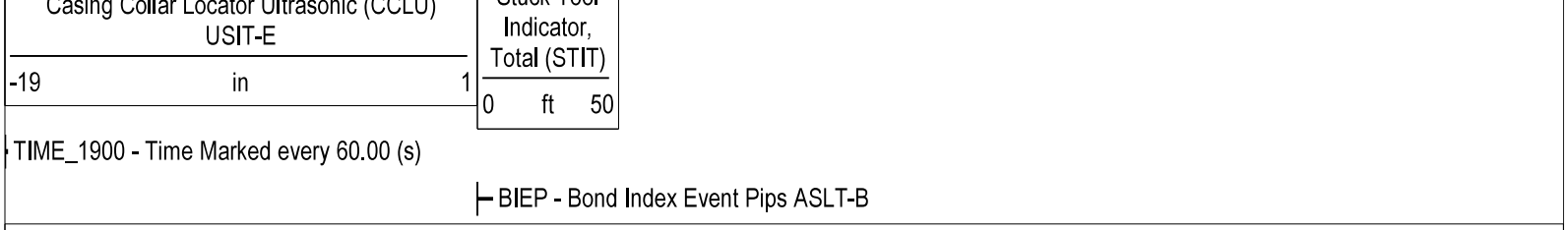
CBL Amplitude (CBL) ASLT-B

0 mV 100

Min Amplitude Max

Variable Density Log (VDL) ASLT-B

100 us 600



Description: CBL_VDL Format: Log (DSLT ASLT_CBL-VDL RA) Index Scale: 5 in per 100 ft Index Unit: ft Index Type: Measured Depth Creation Date: 20-Oct-2021 12:01:41

Company:	Occidental Petroleum Inc
Well:	Cooley 13-16
Field:	Wattenberg
County:	Weld
Country:	

Schlumberger

Cement Bond Log
Variable Density Log
Gamma Ray - CCL